THE HEALTH MAGAZINE

HYGEIA

Medical Library

PHARMACY—A Vanishing Profession?

DECEMBER · 1940 · 25c

If Good Health came in a package . .

How simple it would be! "A box of health, please! Gift-wrap and deliver it to my family." And with that box would go your fervent wish for a lifetime's enjoyment.

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BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

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SAGITTARIUS

IN FUTURE ISSUES

The normal, natural human body, clad, but unwashed, develops a distinctive odor, says Howard W. Haggard, M.D. But the nose above that body is blissfully unaware of the aroma. This is an accommodating but treacherous characteristic of the sense of smell. The unwashed boy, the sweaty-footed youth, the garlic-saturated man in the theater, is each unconscious of his own aroma.

Do the parables of modern advertising apply to you; those parables told in terms of social fear—the loss of love; jobs and popularity? It may be you, it may be I; but even our noses and our best friends won't tell us.

The American people spend many millions of dollars yearly for vitamins in the form of pills, capsules and other condensed preparations. The United States Department of Agriculture is now conducting an extensive program to increase the vitamin contents in vegetables and other natural products.

S. R. Winters brings you this interesting government study of all crops, but especially of vegetables.

An old saw that defines intelligence says: "Intelligence is what is measured by intelligence tests." There is truth in that definition, even though its implications are cynical, for unless the behavior of a human being is studied over a long period of time, and in all kinds of different situations, it is impossible to secure even an approximate estimate.

Grace R. Rabson defines the scope and limitations of these tests, and what they may mean to you.

There is something about the cutting and rolling of surgical dressings which appeals to women in every walk of life, says George Adams in "Hand Made Mercy." This is not hearsay; it has been demonstrated repeatedly in Red Cross workrooms throughout the United States.

Read what these 300,000 women are doing, and why many more are registering every day.

HYGEIA

THE HEALTH MAGAZINE

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For sound, even teeth

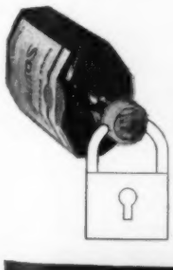
Don't rely on sunshine, alone, to supply your baby with Vitamin D. Even on sunny days, smoke filters out more than ⅓ of the light. Clouds, dust, ordinary window glass may keep your baby from getting enough Vitamin D. Help him build a sound, properly spaced set of teeth. Give him a well-balanced diet, and Squibb Cod Liver Oil, in addition, for extra Vitamin D

Not even twins grow alike

At ten months, some babies are just learning to stand. Others are walking. More important than *when* your baby stands or walks is whether he's building straight legs, a strong back, a full chest, a well-shaped head. To help develop them, your baby needs plenty of Vitamin D. Start now and give him Squibb Cod Liver Oil, regularly every day!

4 months! lifts head alone!

It's one of the first signs of baby's independence! By the fifth month, he should be able to roll over. Next he'll sit up unsupported, raise himself, finally walk alone! To help build the strong bones that make for a well-shaped head, start Squibb Cod Liver Oil daily, soon after birth.



Vitamins guarded! You save money!...The U. S. Children's Bureau advises starting baby on ½ teaspoonful of cod liver oil daily. Then increasing the dose gradually to 3 teaspoonfuls a day at 3 months. The oil referred to, however, (one that meets minimum requirements of the U. S. Pharmacopeia) contains only one-third as much Vitamin D, one-half as much Vitamin A as Squibb Cod Liver Oil. Think of the economy! A bottle of Squibb Cod Liver Oil lasts twice as long. Save money! Ask for it today!...*The priceless ingredient of every product is the honor and integrity of its maker*

SQUIBB *Cod-Liver Oil*

"The Adcomber"

looks at Hygeia ads

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—:—

Make it a "Merry Christmas" for that 'teen age daughter of yours. Give her one of those much coveted Beauty Counselors COLLEGE GIRL KITS. Everything a young girl wants or needs in cosmetics—attractively packaged, attractively priced. Call in a Beauty Counselor today and "try before you buy."

—:—

The "thank-you" will be a real one if you remember that older friend or relative with a FOOTSURE BATH MAT. Such a practical gift because it helps prevent dangerous bathtub or shower falls. To get your preferred color order early from your local furnishing house, or write direct.

—:—

May I suggest a holiday treat the children will adore? Plenty of delicious, refreshing Church's GRAPE JUICE to make those fruit cakes extra good eating. It's a naturally sweet grape juice—no added sugar.

—:—

Worth reading and worth owning is Dr. Peter Steincrohn's fascinating book—"More Years For The Asking." He tells you how easy it is to prevent various ailments—gives you the clue toward adding years to your life. And the price of the book is just $2.00!

—:—

Next time you're outfitting the kiddies with shoes—step into a store that sells POLL PARROTS. You'll like the style, durability and comfort qualities that make these shoes favorites the country over with youngsters and their parents. Priced just right, too!

—:—

Can you sometimes just "taste" the dryness of indoor heat? It's uncomfortable and unhealthful to let the humidity fall below the proper level. Decide today you're going to send for free information on the Walton Humidifier—also the free pamphlet "Dangers of Hot Dry Air."

—:—

Don't despair if your youngster is a thumb-sucker or bites his nails! Do what a lot of other parents are doing—get a bottle of THUM. Apply it to the offending fingers—and see what grand results follow. Your druggist can supply you with THUM today!

—:—

Have you written in for your *free* copy of that 50c booklet—"Massage And What It Can Do"? The offer is still good, but there are only a limited number of booklets. When you write, ask about the VITALATOR, too.

THE ADCOMBER.

All products mentioned above are advertised in this issue. See advertising index, Page 1119.

Who's Who IN HYGEIA

CELESTE TURNER WRIGHT, author of "Much Taboo about Nothing," page 1088, was awarded her Ph.D. by the University of California at the age of 22. Ever since, she has taught there, besides editing publications on a variety of subjects.

"Being so young when I arrived at this campus," she writes, "I married one of my own students." He is a botanist and they spend their vacations motoring about the United States. Last summer they visited 8 national parks. She is a native of Maine and has lived for some time in both Indiana and California.

She has published a book of biography and also several research articles, all in the field of Elizabethan literature. Her hobby is writing sonnets, but so far they have appeared only in newspapers.

"This," writes CONSTANCE FOSTER, "is probably a banner year in the Foster family history, because in 1940 we have acquired a home of our own, a business of our own and a first book ('The Attractive Child')." She has two of them—children, not books. But they also have many books, in fact they have so many that they have had to build additional book cases to hold them all.

The children are aged 15 and 8, respectively. Mrs. Foster has written her book against the scientific background of their experiments, which were numerous. Her article, "Ears," page 1052, is a chapter from this book. The Fosters have a darkroom in their cellar, and a chemical laboratory where explosions occur regularly. Their older son, who wants to become a doctor, has been raising pure-bred mice to test the Mendelian laws of inheritance.

Mrs. Foster, a Baptist minister's daughter, graduated from Smith College with Phi Beta Kappa honors. She married an engineer and has a passion for attending auctions and collecting antiques. At one time she was accepted for admission to Johns Hopkins Medical School, but decided to write about medical subjects instead.

GEORGE SCHWARTZ, M.D., coauthor with Joseph Harvey of "Rheumatic Infections," page 1064, received his bachelor's degree with honors in Biology from New York University and his medical degree from Bellevue Hospital. He is Chairman, Publicity Committee of the Bronx County Medical Society and a member of the Public Relations Committee and Public Health Education Committee.

His hobby centers largely about civic matters: he is Director of the Bronx Chamber of Commerce; Medical Director of the New York City Life Saving Service; Director of various safety campaigns and on the advisory committee of the Bronx Division of the American Red Cross. He has also recently been Director of the Boy Scouts Foundation of Greater New York and President of the Bronx Camp Fire Girls.

JOSEPH HARVEY, M.D., who wrote "Rheumatic Infections" with Dr. Schwartz, was born in New York City, where he received his premedical training. He began the study of medicine at the University of Bonn, Germany, in 1932 and was graduated, cum laude, in February 1938.

Dr. Harvey is now in the Department of Cardiology at the Downtown Hospital and also with their Compensation Clinic and Health Review Department.

"Rheumatic Infections" by Doctors Harvey and Schwartz originated in the Downtown Hospital, New York City.

EMERSON G. WULLING, author of "Pharmacy—a Vanishing Profession?", page 1055, was born in Minneapolis in 1903 and there received his first formal education in the public schools. He was awarded his bachelor's degree at the Uni-

versity of Minnesota in 1923, his master's from Harvard in 1927 and his Ph.D. from the University of Minnesota in 1938. He has also been to Europe twice for further study. "The pharmacist in literature," Mr. Wulling says, "has been treated in various ways, depending on the period."

Reared in a pharmacist's family, he went astray by becoming a printer by avocation (he operates a private press), and an instructor in English by vocation (Syracuse, Hamline, Wisconsin State Teachers College), with an interval of lecturing in the Minneapolis Institute of Arts.

His father is Frederick J. Wulling, one of the leading pharmaceutical educators in the country and now dean emeritus of the University of Minnesota College of Pharmacy.

LETTERS FROM *Readers*

Strange Bathing Customs

To the Editor:

I would like to comment on your article about bathing customs all over the world in your July issue.

In it, Mildred Brennan remarks: "Parisians average one bath every four months . . . in Paris only 25 per cent of the population have a private bath."

I am sorry to say Miss Brennan is very much mistaken. I ought to know; I am a Parisian.

It is a fact that there are few private baths in France, even among the wealthy—about 10 per cent would be more correct. On the other hand, the lack of private baths does not prevent Parisians from being scrupulously clean.

Every family has a tub of some sort, in which its members take one or more baths a week. In summer time, many Parisians take a sponge bath every day, besides their weekly tub bath.

All over Paris are public bath houses on which are printed in large letters "BATH-SHOWERS." These places are well patronized.

In these bath houses a person may order, for a few cents, any kind of bath he may desire: "Bain Simple" (plain bath) "Bain sulphureux" (Sulphur bath), etc.

An attendant assigns each patron to a private room in which is a tub brimful of hot water. You may, if you wish, have your feet treated and toes manicured after your bath.

MARIE LOUISE STANLEY

Hawthorne, Calif.

The Doctor

To the Editor:

Will you kindly forward the enclosed letter to E. O. Laughlin, whose poem "The Doctor" accompanies the well known picture of the same name in your August issue of HYGEIA.

A few years ago I learned the history of the picture and according to the story the sick child did get well. I believe the story is authentic and I would like to pass on this information to the writer who wrote the sympathetic poem about the picture, which is familiar and liked by so many people in all classes of life. Thanking you for this courtesy I am most sincerely yours.

Easton, Pa. ELVIRA MACDOUGALL

Questions and Answers

To the Editor:

I have subscribed to HYGEIA for years. This statement hardly needs further elaboration to show that I consider the magazine a worthwhile investment. I deem it a particular advantage to have your Q & A department to clear problems of health and disease which arise every so often. However, I do try not to take undue advantage of this very tempting privilege for if each subscriber were to abuse this special favor your department would be swamped.

GABRIELLE G. CHANQUET

Oakland, Calif.

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Both cabinet and urn styles. New *Thrift* table model in striking blue or green pottery available at $24.95.

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Irvington, New Jersey

Please send me descriptive literature on the Walton Humidifier.

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Homer Jensen

Christmas morning brings heavenly joy;
A hobby horse for a crippled boy.

—K.F.R.

Medical Education for the People

DURING recent years more and more of the mystery is being removed from public information regarding medical science. Once it was thought that every one would do far better if he knew nothing whatever about health or disease and would rely wholly and implicitly on his medical advisers. More recently it has been recognized that an informed patient can cooperate with his physician to far greater advantage than one who follows blindly. In response to this knowledge HYGEIA was first developed as a scientific periodical on health for the lay reader. Now in its seventeenth year, this publication has well justified itself as a source of authentic information.

Recent years have been important particularly for contributions by physicians of records of their own lives and for notable biographies of some of the greatest physicians of our times. The "Life of Sir William Osler" by Harvey W. Cushing received the Pulitzer prize in 1925 and is today recognized as one of the classical biographies. When "An American Doctor's Odyssey" by Victor G. Heiser became available hundreds of thousands of readers found that the control of epidemic disease is just as fascinating a conflict as any of the wars which have occupied the attention of military leaders.

Just available in recent months are the autobiographies of Hugh Young, noted as a leader in the development of our knowledge of urology; J. M. T. Finney, eminent as a professor of surgery at Johns Hopkins University, and the reminiscences of Abraham Flexner, whose contribution to the advancement of the standards of medical education in the United States was epoch-making. The classical contribution for 1940, towering in drama, in classicism and in literary quality above all of the other contributions, is the autobiography of Hans Zinsser, published under the title "As I Remember Him." For the young man who contemplates entrance on a medical career such works are a gift that must be prized far above any outlay of funds that their purchase may necessitate.

Intimate enlightenment into the procedures of medical practice can be found in textbooks of hygiene for students in high schools, colleges and universities. The work of Harold S. Diehl, called "Healthful Living," and "A College Textbook of Hygiene" by Smiley and Gould are universally recommended. Among general works recounting man's progress against disease, "Progress in Medicine" by Iago Galdston and "Americans, Live Longer!" by W. W. Bauer are new contributions that are authentic and interesting. The first book of its kind in a similar field is "A Surgeon Explains to the Layman" by M. Benmosché. Herein a surgeon gives the details of the various surgical procedures to which many human beings are now subjected, telling them about anesthetics and describing step by step each of the procedures in many of the most frequent surgical operations. For persons who are quite certain of their ability to read without too much effect on the power of suggestion, a work of this type might be a pleasant antecedent to a surgical experience.

Among the greatest of all advances in modern medicine are those concerned with diet. New editions of the book by Mary Swartz Rose called "Feeding the Family" and the work of Sherman and Lanford on the "Essentials of Nutrition" make it possible for any intelligent reader to bring himself promptly up to date. The book by Bogert and Porter, called "Dietetics Simplified," is also available now in a new edition which, for either the student of nutrition or the intelligent housewife, contains much to add to scientific eating.

Hundreds of new books with medical aspects are now available in each year's contributions. There have been novels like "Miss Susie Slagle's," contributions to the medical aspects of criminology like "Behind the Scenes of Murder" by Joseph Catton and "Men at Their Worst" by Leo L. Stanley. There are new books and new editions in great numbers dealing with the care of the child and others concerned with understanding problems of sex.

The American Library Association and the American Medical Association have cooperated in the development of reading lists about medicine, about mental health, about food, about the child, about diseases, about public health and about personal health. These lists, supplemented by the latest contributions of 1940 and supplemented by further periodical literature in the field of health, make for better education of the public generally and for patients whose own contribution to the prevention of disease will do much to lessen mortality and to promote health.

WAR—and Medical Progress

***In face of the appalling statistics of World War 1, it seems incredible that such a stupendous disaster could be of any benefit to the human race. But the unfolding years have revealed startling advances in medical knowledge which developed as the result of that conflict, reports* JOSEPH R. DARNALL**

DURING the World War period of 1914-1918, more than 60 million men were mobilized in 16 belligerent nations. From the very beginning of that conflict no one dreamed of dubbing it a "phoney" war. About 20 million lives were extinguished as a direct or indirect result of that struggle. The death toll included approximately 10 million soldiers and sailors who were killed in action or died from wounds or disease. Another 20 million were wounded and nearly 7 million were listed as missing or prisoners.

In the face of these appalling statistics it seems incredible that such a colossal disaster could be of any benefit to the human race. Yet, the unfolding years have revealed advances in medical knowledge which developed as a result of the World War, when great nations found themselves in danger of annihilation. The will to survive and triumph stimulated progress and accomplishment in all fields. Medical achievement was accelerated and resulted in contributions which tended to offset or compensate for the destruction wrought by military action.

In the tranquility of peace, genius often lies dormant and indolent because the stimulus to achieve and to accomplish difficult tasks is "bogged down" in the morass of ease, wealth and affluence acquired for progeny by successful and indulgent forebears. Under the stress of war genius may burn brightly and may produce definite contributions to the progress of medicine and to human welfare in general.

Effects on the Medical Profession

In each of the belligerent countries the best medical men of the time were among the first to offer their services. An eminent internist spoke of the physicians and surgeons of the

United States as follows: "They were the first of the American Army to enter France and Belgium. The Medical Department was the first to be under fire; the first to suffer casualties, and the first to receive death at the hands of the enemy."

With the ink hardly dry on many of their diplomas, young doctors hastened from medical schools and internships to serve under the far-flung flags of the warring nations. Mature general practitioners and specialists in all branches of medical science gave up remunerative practices to care for the sick and wounded.

prevent disease, supervise sanitation and in various other ways assist in the conservation of more than 60 million mobilized men. Physicians, by temperament, training and inclination are essentially individualists, and dislike regimentation. However, their patriotism and common sense compelled them to submit in good spirit to disciplinary control which is necessarily a part of military organization. Cooperative medical effort and team-work developed on a greater scale than ever before in the history of medicine. Group practice, as it is known today, may be said to have been generally established after the World War. The result of experiences during the war showed the medical world the feasibility of teamwork, specialization, and logical division of labor. There can be no doubt that this has expedited professional work, lessened cost of expert medical care and elevated the quality and efficiency of the service rendered.

The war made it strikingly evident that no man could possibly possess all the skill and technical knowledge necessary to meet adequately every professional emergency. The post-war era took cognizance of this fact and civilian medical practice became enriched by the sturdy growth of specialization.

Physical examination of millions of men selected for military service during the last war focused public attention on both the physical and mental unfitness of a considerable por-

tion of our population and the medical-sociologic problems incident thereto. There has arisen a commendable interest in periodical physical examinations, a successful effort to raise the standards of medical education, and a popular demand for increased facilities for postgraduate medical training.

In the field of military medicine, the World War brought to all nations a realization of the need for both medical and military preparedness, including personnel procurement and classification, field training, medical supply, and medical mobilization plans. Although it is true that during the war many medical men were diverted from important peace-time research and practice, many others were pulled out of ruts and dragged from the mire of professional stagnation. Through war-time association with other physicians they acquired broader experience, proficiency to shoulder greater responsibilities, and discovered new and greater fields of endeavor. Whatever they may have lost was, in many instances, replaced by a breadth of perspective that could never have developed in the course of a peace-time career, whether at Smith's crossroads or in a large metropolitan medical center.

During the war physicians, surgeons, chemists, physiologists, bacteriologists, biologists and pathologists were brought into intimate association with one another in solving problems which encroached on their several fields of medical science. Thus, the interchange of professional knowledge became more widespread. A wealth of medical literature based on experiences of medical men during the World War has accumulated. A comprehensive record of the activities of the United States Army Medical Department during that period has been published. These fifteen volumes, "The Medical Department of the United States Army in the World War," compiled from records in the Surgeon General's Office, are the most complete chronicle of war medical activities in the history of the world. Other nations, to a lesser degree, have preserved documentary details of their medical activities during this great conflict.

"He gazed at the shell-torn fields of Flanders, blanketed with red poppies."

The organized development of public health nursing on a more comprehensive scale was accelerated by the war. The value of the nursing profession in general was more widely appreciated and popularized. As demand for nursing services increased, nursing education and activities expanded to an unprecedented degree.

Surgery and Its Related Specialties

In 1920 a distinguished American surgeon made the following statement concerning the clinical material created by the World War and its effect upon the progress of surgery: "So vast was the field, that in traumatic surgery the concentrated and accumulated experience of this brief period was greater than the experience along the same lines during the past one hundred years. It follows that during those months many new chapters were opened, some were closed, and some discarded. But many were completed and their subject-matter stands to be passed on to the benefit of civilian practice."

Improved treatment of wounds stands out as one of several important advances in surgery

The World War and its after-effects provided exceptional opportunities for the study of nervous and mental diseases, especially the ill-named "shell-shock."

contributed by the World War. Debridement, or the cutting away of all devitalized tissues in a wound, followed by continuous disinfectant irrigation and known as Carrel-Dakin treatment, and delayed surgical closure of infected wounds were originated and proved highly successful. The war also taught the importance of splinting, and thereby immobilizing extensive wounds of the soft tissues, even when no bones were broken. It was also learned that germs of almost any variety can be dormant in healed or healing wounds and may, with slight provocation, cause recurring infection. Much progress was made in determining the disinfectant properties of various dyes and chlorine preparations. This resulted in the development of a number of valuable surgical disinfectants such as Dakin's solution.

Substantial improvements were made in bone and joint surgery, especially in the treatment of infected joints, bone grafting, and amputations. Standardization and dissemination of knowledge concerning splints and proper management of fracture cases were accomplished. The war brought forth improved appliances such as artificial limbs, supporting jackets, belts, braces, and showed the need for orthopedic shops at hospitals caring for patients with diseased or injured bones and joints. Doctor Wilms, a Belgian surgeon, developed a procedure for treating septic arthritis which has prevented, and will continue to prevent, thousands of stiff joints.

Anesthesia received careful study and rose to a higher plane during the war. Collaboration between laboratory and surgical service was intensified and was a factor in the establishment of improved surgical methods. Blood transfusion was simplified, its dangers determined and controlled, and its field of usefulness extended. A plan was evolved whereby blood could be collected and kept sterile, so that at any time within two weeks it could be available for transfusion. Blood banks, originated during the World War, have become increasingly popular and of great value in recent years.

Important advances were made in surgery of the chest, abdomen, nerves and tendons, as well as in skin grafting, plastic surgery and treatment of burns. An important improvement in x-ray technic developed in the war was the perfection of a highly satisfactory method of localizing foreign bodies in wounds. One cannot estimate the surgical shock that has been prevented or the number of lives saved by this seemingly small contribution to medical science.

The current usefulness of achievements in traumatic surgery during the war is apparent when we consider the increasing number of automobile accidents, the victims of which may benefit from surgical advances made in 1914-1918.

Internal Medicine and Its Related Specialties

Great as was the demand for surgeons during the war, the need for physicians with a knowledge of internal medicine and its subspecialties was even greater. Highly qualified internists, including specialists in heart disease, tuberculosis, *(Continued on page 1097)*

EARS

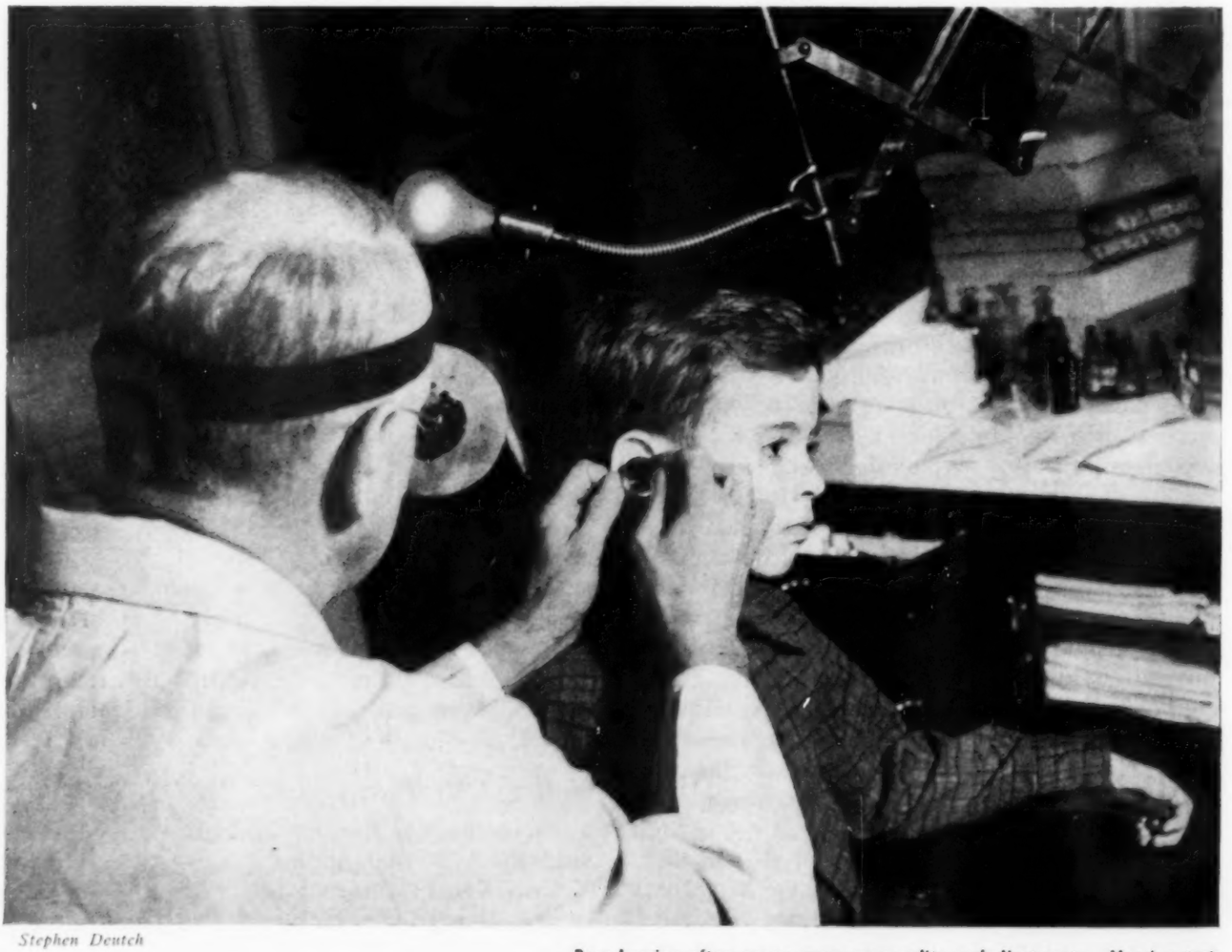
Children often fail to realize they have hearing handicaps. When they have never been able to hear normally, they have no general basis for comparison with other children. Sometimes, however, they may learn to compensate by developing other faculties so that even their parents are unable to detect this severe disability, says ***CONSTANCE J. FOSTER***

"SHE USED TO BE SO PRETTY," Nancy's mother complained. "She still has lovely features, and every one raves about her big black eyes. But she's developing an expressionless look. Sometimes when I'm talking to her, she looks positively stupid. She's doing poorly in school, too. Yet, when she started first grade, the teacher said that her I. Q. put her in the superior group. I'm worried about her."

Nancy failed to be promoted that term. In addition to the disgrace at school, she had to bear the complaints of her parents who accused her of being lazy and dull.

It was not until the next Fall when school opened again that Nancy's difficulty was located. That year, for the first time, the community added hearing tests to the school's program. These tests revealed a hitherto unsuspected fact, a fact of which even Nancy herself had been unaware. She had difficulty in hearing.

At once she was taken to the family physician who discovered that her ears were



Stephen Deutch

Poor hearing often causes many personality maladjustments. Hearing tests, as well as physical examinations of the ear drum and canal, are essential.

plugged with an accumulation of wax. The simple expedient of removing the wax put Nancy back at the head of her class and took the blank, dull look out of her eyes. Nancy could hear again. But what permanent harm was done to the child's personality development during the long months when she felt inferior and inadequate to her world?

At less than 4, young Dick was already a behavior problem. He was taken to a child guidance clinic by his mother who was in despair over his naughtiness, his disobedience and his temper tantrums. Her frequent punishments for these offenses were of no avail.

"I tell him to do one thing," she said, "and he does just the opposite."

Dick was given a thorough physical examination at the clinic. It was found that an ear infection, when he was 2, had left him with impaired hearing that often made it impossible for him to obey his mother since he frequently could not understand her commands. Treatment over a period of months made Dick a normal boy again. But his mother will always regret all the spankings she gave him unjustly.

A more tragic case concerns 12 year old Ralph. The fact that he was large for his age made his timidity seem peculiar. At school the physical training teacher marked on his report card "a poor sport." The boys frankly dismissed him as a "sissy." At home he clung to his mother and was abnormally dependent on her. His teacher urged his mother to give him added responsibility, believing that his retarded school work was due to emotional problems in connection with home relationships.

His mother began sending him on errands, although he had shown reluctance about crossing streets alone. One day Ralph was struck by an automobile and taken to the hospital.

"I blew my horn," explained the frantic driver. "He just didn't seem to pay any attention to it."

That gave the doctor an idea. He tested Ralph's hearing. The boy was found to be suffering from a progressive, incurable, type of deafness. Meanwhile, he had been misunderstood and wrongly handled by the very people who should have been helping to make an adjustment to a life which he faced with a permanent handicap.

It must always be remembered that children may have serious hearing handicaps for a number of years without their knowledge or that of their parents. Never having heard normally, the child has a poor basis for comparing himself with other children and fails to realize why he is different. He may learn to compensate for his deficiency by cleverly increasing the alertness of other senses, so that the parent is deceived, is even unaware of any defect.

Physical attractiveness is dependent on the bright, alert look that goes with normal hearing. To understand the normal hearing process, a brief outline of anatomy and sound-mechanics is necessary.

The ear is divided into three parts, the external, middle and inner ear. The part that small boys hate to wash is merely the external ear. The tube or meatus that leads back into the head is important to hearing mainly because it serves as a conductor for the sound. Hearing difficulties may arise from an accumulation of wax or foreign substances in this tube, making it physically difficult for the sound to enter. This is known as obstructive deafness.

At the inner end of this tube, a skin-covered membrane is stretched across the tube, closing it. This is the tympanic membrane or drum-head. The middle ear consists of this drum-head and the air-filled space inside it. It is connected with the throat by means of the eustachian tube, which lets air in and out of the middle ear much as the small hole in the side of a bass drum fulfills the same purpose.

When the eustachian tube is properly open, the air pressure will be nearly the same on both sides of the drum, permitting it to vibrate freely. But if the tube becomes blocked or stopped up, hearing is impaired because the drum-head is retracted from the unequal pressures on the two sides, and can no longer vibrate efficiently.

In infancy and childhood, the eustachian tube is characteristically shorter and wider than in later life. This probably accounts for increased bacterial infection of the middle ear during periods of lowered resistance. Inflammatory diseases of the middle ear and subsequent complications, affecting hearing, may result.

The child should be taught from the earliest years to blow his nose properly, always leaving one nostril open. Violent nose blowing with both nostrils blocked, may cause undue congestion and even force infectious material up the eustachian tube into the middle ear.

Atomizers applied with severe pressure are dangerous, especially if they block the nostril. In using the ordinary atomizer, it is safer to remove the loose tip on the end and spray gently from just outside the nostril, rather than thrusting the instrument up the nose. The

head should be kept in a forward position when using sprays or shooting drops into the nose. The indiscriminate use of nose drops and sprays generally accomplishes more harm than good.

Within the space of the middle ear is suspended a chain of very tiny bones, known as the "hammer," "anvil" and "stirrup" because they closely resemble these implements. When sound waves strike the drum-head and cause it to vibrate, these light bones are set into vibration also. They, in turn, cause the liquid in the acoustic labyrinth of the inner ear to vibrate. Here there are numerous nerve-endings, going to delicate hair-like obstructions. Stimulated by the vibrations, these hair cells arouse currents in the nerve fibers that travel back to the area of the brain connected with sense perception. At that instant the sound is "heard."

Actual physical sounds or mechanical vibrations are never sensed directly by the brain. Sound does not exist *per se,* but only in the ear of the listener. If an obstruction exists or if any of the elaborately interrelated parts of the hearing mechanism are damaged, some deafness always results.

It is in the inner ear, too, that the semicircular canals are located. These are equipped with sensory nerve endings that have nothing to do with hearing, but play an important part in maintaining bodily equilibrium. It is for this reason that some children with certain types of ear defects have attacks of dizziness, or appear clumsy because they have difficulty keeping their balance.

It is not the parent's function to make a scientific medical diagnosis of the cause and type of hearing difficulty. These difficulties are numerous, ranging from mild, easily correctable hearing losses to progressive deafness for which there is often no cure. It is very much the parent's responsibility, however, to detect defects in hearing as promptly as possible. This is not as easy as it sounds, for accurate testing of infants and children up to the age of 4, presents great difficulty.

Extreme cases of hearing loss are fairly easy to recognize. If a child shows no response to sounds well above the capacity of his friends and playmates, he is obviously hard of hearing. Even an infant blinks his eyes, or moves his head in response to a loud noise. The normal child should be able to hear a whisper at 20 feet from the speaker in a large, quiet room.

School children should be examined at regular intervals with an audiometer, a machine which accurately measures hearing in terms of a decibel rating. The decibel is an established measure of hearing sensitivity and hearing is tested scientifically by determining the faintest sound that can be heard.

In the young child, the hearing test must be adapted to his age and mental development. Using only such simple words and expressions as he understands, train him first to repeat them so that he becomes accustomed to the response expected of him. If this is not possible, he can be conditioned to imitate a sound, such as ringing a bell, or clapping the hands.

Now have the child repeat the responses at greater and greater distances from their source, making a game of it. The test should be continued until the same sounds are repeated with the child out of sight, where he may be observed by a third party who gives no cue of what is expected of him, no sign that any sound has occurred.

Do not prolong such tests more than a few minutes. The young child tires easily and it is hard to hold his attention for any length of time.

Many parents believe, that without a history of earache and abscesses, deafness is congenital and that cure is impossible. But many cases have been pus producing without the parent's knowledge. Repeated inflammatory conditions that have gone unrecognized may lower the child's resistance, establish a hypersensitivity, and begin progressive deafness.

The following symptoms of ear difficulty should be regarded as suspicious. Any or all of them may occur without any previous history of ear disease of which the parent is aware. Total deafness in one ear, for example, often goes completely unrecognized, especially if it occurs in the presence of a severe illness.

1. Deafness, dullness, heaviness, or a blocking sensation in the ears persisting for more than a few minutes, particularly after exposure to cold, swimming, head colds, fatigue, shock, or other causes of lowered resistance.

2. Hearing better than others in noisy places.

3. Marked language retardation. Failure to acquire a considerable vocabulary by the age of 3, indicates the need for an examination.

4. Asking frequently for the repetition of words and phrases. This is often falsely blamed on stupidity or inattention.

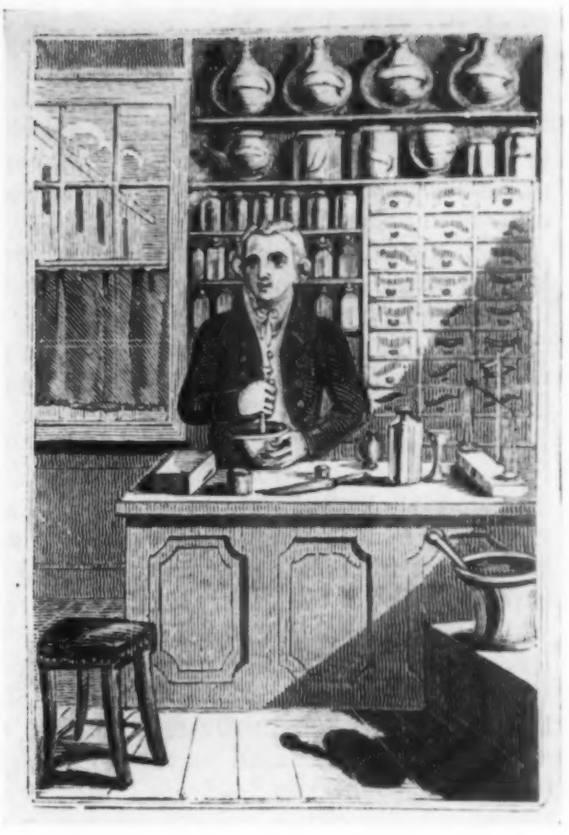
5. The confusion of similar sounds is one of the first signs of impaired hearing. The victim guesses and gets laughed at, causing him to become sensitive and imagine that people are making fun of him. *(Continued on page 1118)*

PHARMACY—

a Vanishing Profession?

Not so long ago the apothecary was a man of parts, a man with a lore of magic, it seemed. But now his shop has vanished; in its place is a modern drug store on the corner

By EMERSON G. WULLING



THERE ARE two major programs to defend health, one preventive, the other curative. Together they are doing remarkable things. And if anything can be done to improve any part of these programs so much the better. To be specific, take the vanishing profession, pharmacy.

The word "pharmacy" is derived from the Greek word "pharmakon," meaning drug or remedy. The profession of pharmacy is concerned with dispensing medicine. Its function is a part of the health program, a vital part. When we take medicine we want to be sure that it is the right medicine, a responsibility of the prescribing physician; and that it is a well prepared medicine, a responsibility of the dispensing pharmacist.

Pharmacy is a specialty whose practice is reserved by law to the pharmacist. A chemist may not dispense. Similarly, a pharmacist should not prescribe. The wisdom of separating the prescribing and dispensing functions is clear when we realize the desirability of a division of labor with the resultant extensive skill possible in each. Furthermore, the division provides a double check on the medicine which we take. Any one may make a mistake, even a specialist, but two specialists are far less likely to err, since each is a check on the other.

Pharmacy is a professional specialty, but its professional integrity seems to be diminishing, as witness the highly commercialized drug store of the comics and gag-men. Certainly, pharmacy has less appeal for the public imagination than other health specialties such as surgery, for example.

No one will say that the proprietor of a restaurant, or of a stationery store, or of a department store is not a useful citizen and perhaps very astute in his field. But no one is willing to have a stationer operate on him or dispense his medicine, one drop of which will cure and two, perhaps, kill. The average, modern drug store is a variety store, dealing mostly in commercial items which can be sold over the counter by any one who knows the language and can make change.

Even the most unpharmaceutical of us, if he is old enough, can remember the old apothecary's shop with its bottles of colored liquid in the windows, and inside:

> *Here phials in nice discipline are set,*
> *There gallipots are ranged in alphabet.*
> —Garth's *Dispensary.*

Mystery and glamor hovered about such a shop. The apothecary himself was a man of parts, a man with lore of magic, it seemed. These shops have vanished. In their places we have drug stores, the kind that we joke about.

The apothecary's shop has indeed vanished. Need the casual observer be blamed if he thinks the profession has also vanished? With so much evidence of professional men turning into merchants, with not even the merchants' occasional distaste for poaching in another's preserves, it is hard to correct an impression only circumstantially warranted.

In spite of appearances, however, pharmacy is not a vanishing profession. It is a profession in the process of division. And pharmacy, the real thing, is advancing at a thoroughly satisfactory pace and serving its important part in the health program.

A few decades ago a pharmacist practiced a profession, personally, in public sight. He gave a professional service and only that. He was respected by the community as a man who knew something difficult to know, worth knowing. Then two things gradually came about which worked to the disadvantage of the profession: (1) an influx of too many pharmacists; (2) large scale manufacture of medicines. Both came about naturally enough.

There is only a limited amount of dispensing to be done. The state did not limit the number of pharmacists, and the pharmaceutical organizations failed to get it done. A hundred and fifty thousand persons doing the work that could be done by fifty thousand means trouble. The result was poaching. First more and more patent medicines; then beverages; then merchandise; then anything under the sun except plumbing. That may be next.

Thus we have the spectacle of a wise profession being overcrowded while the professional organizations stood by.

The second disintegrating force was large scale manufacture of medicine. Some medicines, much needed, could be more economically made in bulk than by individual pharmacists. Balms and salves, pastes, solutions, tonics, palliatives, certain simples, and so on, not subject to rapid deterioration, quite clearly can be produced more cheaply in large quantities. As a result large manufacturing firms arose with "lines" of pharmaceuticals. It is important to remember that the advantage was, and is, mostly economic, but this is not always true.

With more pharmacists and less pharmaceutical work, the profession turned to other "lines." A drug store became a variety store.

But is the public innocent of any fault? The old apothecary's shop had a reputation for high quality. If, for example, you had a choice of buying spice from an apothecary or from a grocer, you would prefer the apothecary.

No longer can a pharmacist be trained in a few months; minimum courses require at least four years. Graduate study is now possible, may soon become a prerequisite.

The public had confidence in the offerings of the apothecaries. When they offered alarm clocks, the public went in and bought. But why? Would not a clock man be a better judge of value in a clock than a pharmacist who probably does not know the difference between a hairspring and an escapement?

And is the watchmaker, the grocer, the restaurateur innocent of any fault? Why do they let the pharmacists poach in their preserves? They have tried to chase him out, but with no success. The state does not offer them protection as it does the pharmacist. Any one may sell washing machines, even a pharmacist. But not every one can fill prescriptions.

The apothecary's shop is supplanted by the commercialized drug store. The drug store sells anything, even drugs. This condition is rationalized by saying that it is useful to have a drug store in every neighborhood and small village so that sickness can be served promptly. Not every neighborhood, however, can support a drug store tending to its own business only. If a line of notions can be added in addition to the prescription counter, then enough profits will be forthcoming to support the prescription counter. Otherwise you might have to go a mile or 5 or 50 to have your prescription filled. Specious reasoning! What is distance in this age of quick transportation? And what sort of a prescription can you get filled if the pharmacist has four raspberry sundaes and a bathing cap to sell first? The chain stores answer that question with great glee by saying that in every one of their stores they have a registered pharmacist (required by law, anyway) who does nothing but fill prescriptions at a fixed salary. Think of it: in a drug store, a man who fills prescriptions. The truth is that as often as not the prescription is sent to a central store and filled there. The chain-store men go further. In great self-righteousness they point out that all their "men" are well treated and that the pharmacist is at least an assistant manager. Shades of Galen! What a height to reach; a pharmacist in a drug store to be assistant manager to a man who, as likely as not, does not know what the Pharmacopoeia is, let alone how to spell the word.

That is one side of the picture, the gloomy side. This condition of chaos is what the public sees. Consequently, pharmacy has been labeled the vanishing profession. Perhaps the pharmacists had it coming to them.

Pharmacy, however, is not a vanishing profession. It is a growing profession. It is in the process of division. The hundred thousand or so pharmacists too many, and the large scale manufacture of medicine, not really necessary, are in the process of being side tracked. In time drug stores will sell package goods, and the profession of pharmacy will entrench itself in laboratories and pharmaceutical shops.

Already the movement is clear. Many pharmacists have opened shops where they do nothing but fill prescriptions and carry on pharmaceutical researches. But these are small shops; often they are upstairs in medical arts buildings. The public does not yet generally know that they exist. They not only exist; they flourish. And more hospitals are beginning to have their pharmaceutical laboratories where work of scientific and professional quality is assured. The universities are awakening; they have begun to consider quality rather than quantity. Pharmaceutical instruction has left the haphazard hands of preceptors and the incompetent hands of quiz-schools and is being centered in the scientific faculties of the universities. No longer can a pharmacist be trained in a few months. It now takes four years for a decent minimum course, and in time the requirements will be even higher. There is ample opportunity for graduate study, and many of the real pharmacists are Doctors of Pharmacy and Medical Doctors. During the past half century pharmaceutical research has kept pace with advancing science, and has contributed much to its advance. The United States Pharmacopoeia and the National Formulary have been revised and improved by pharmacists, physicians and others. The profession will emerge eventually in the white-jacketed splendor already achieved by chemistry. After all, pharmacy is the cradle of chemistry, and one of the chief medical specialties.

There are more high caliber men in pharmacy, today, than when the apothecary's shop existed, but they are not as noticeable because they are in the laboratories of hospitals, on the production and research staffs of the reputable manufacturing houses, in laboratories of their own associated with medical centers, and on teaching staffs.

The public may be confident that they exist and that they serve. Let the modern drug store run its course, commercially serviceable it is admitted. But let the public know that the vanishing apothecary's shop does not mean a vanishing profession of pharmacy. Here, indeed, is a profession that is growing in health service.

FEEDING the ARMY!

***Army cooking schools have tightened their figurative belts and are now swinging into high gear, preparing many hundreds of new cooks for the largest influx of men since '17, says* ZALMON H. GARFIELD**

IN ONE of the smaller buildings on the flat plains of Fort Sheridan, Illinois, is one differentiated externally from the rest only by the legend "Cooking and Baking School." Here soldiers of the United States' Army Sixth Corps area are sent to learn the science of mass production of appetizing, nutritious meals under the tutelage of the army's master cooks.

Capsules have been drawn from a glass jar in Washington and the army prepares to receive the greatest influx since '17. Cooking schools in each of the army's 9 corps areas tighten their figurative belts, swing into high gear, manufacturing hundreds of new cooks.

Operating with a class of 89 men, somewhat over its ordinary level, there is a list of applicants from almost every post in the Sixth Corps area waiting to enter the Fort Sheridan school. And the army needs them all—and more.

Already the school has been ordered to cut the four months training term to half that length. "You can't make a good cook or baker in two months," asserts the school's commanding officer with a smile, "but with the tremendous expansion necessary to accommodate the draftees, we've got to do it. The army is accustomed to doing things that can't be done."

In 1937 the Sixth Corps area was denominated as the standard-setter for the entire army in cooking and baking schools. In the little "school house," almost swamped by the scores of new barracks literally "shooting up," the commanding officer and his staff plan the line of attack, designed to make the best army cooks and bakers of what were once civilian farm hands, mechanics, ditch diggers.

The school is divided into two major classifications: cooking and baking, the latter being subdivided into bread baking and pastry baking. A cook may not be a baker, nor a baker a cook. In preparing meals for the 150 men in a company, one man cannot manage both jobs. In each of the three departments, the student soldier spends the greatest proportion of his time in practical work. Every other afternoon is partially devoted to the class room, where he studies the technic and theory of his job, plus dietetics and food hygiene.

Operating on much the same basis as any occupational school, lecture hall to work room, the school is distinguished by a unique speed of operation and its mammoth scale of work. Army efficiency combines with these two factors, for there is no place in the army for wasted motion or wasted materials. Garbage in an army kitchen is virtually unknown. The products of the "practice" of the student cooks goes into their own stomachs, among others, for which, like all men, they have a profound respect—an added inducement to care in their work.

If this basic appeal to punctiliousness of execution is not enough, the army, famous for its "fundamentals," uses another device to exhort effort from its trainees: competitive rating and ranking. By their rating they shall be judged, and every student knows it. At the end of the course, each student receives a rating based on the estimate of his work over the entire period. In the army school, failure to meet the required standards simply means a soldier who has wasted the length of the training period. This is a reflection not only on himself, but also on his teachers. Hence, his inability to learn the technic of cooking is usually sheer stupidity or inertia.

Each man is carefully evaluated not only by tests, but also on the basis of initiative, character and intelligence of execution. To the best cooks go the distinction of selection for mess sergeant training. When the trainee completes this course he is placed in command of the "mess" for a company, an army term for the eating department of a unit. Dignity of title here, as in the case of first cook rating, is complemented by additional pay and addi-

tional responsibility. The lure is adequate; the results good.

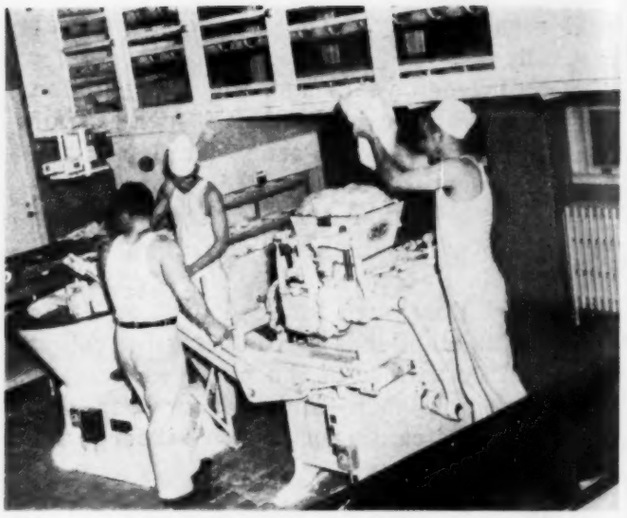
Ten or fifteeen years ago, according to the commanding officer, as high as 40 per cent of the class failed to meet army standards; the average education of a cooking or baking trainee was grammar school. Today, as the army lifts itself to higher levels, high school education is a commonplace for "cooks in training"; failures are lowered to 2 or 3 per cent and the standards for a successful rating rises with the caliber of the men.

The army kitchen and bakery has one characteristic, cleanliness, in which it surpasses almost unanimously the best of its civilian brothers, for here scrupulous cleanliness is maintained, from floor to utensils, even including the workers themselves.

To enter the cooking school the applicant must pass a rigid examination for communicable or social diseases, and must possess a satisfactory character record. To stay there he must match himself to his surroundings. Baking and cooking tend to be messy jobs, but in the army this, along with personal sloppiness, is sharply curbed. While baking hundreds of loaves of bread from giant vats of dough both men and the machinery remain

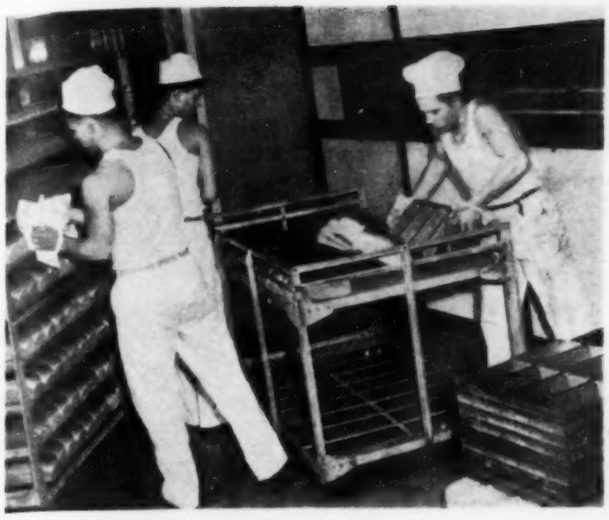
Cooks and bakers eat food they have prepared, along with other soldiers. Lunch includes soup, steak, biscuits and gravy, fresh corn, spinach, salad, cake and choice of beverage

After bread dough is mixed, it is transported to dividing machines in huge trough-like cars.



Dividing machines accurately weight and measure the dough into amounts suitable for loaf baking.

In the pastry department, ingredients are carefully weighed and measured on standardized scales. At right is the new cake mixer.



After the bread is baked, it is removed from the pans and placed on metal racks to cool.

amazingly clean. In the kitchen, where the less adhesive nature of materials makes it simpler, immaculateness is more rigorously exacted.

Even though discipline is rigorous, the culinary army works on the same principle as other units, combining work and play. In recreation rooms, created and maintained by the students themselves, dough and pots, steaks and beans are forgotten in a cue of pool or a set of ping pong.

The bread bakery at the school operates on two floors. A conveyor belt transports the dough pellets from mixing and "proofing" on the upper level to final "proofing" and baking in the giant ovens below. From the time the ingredients are poured into a mixer on the first level until the final loaf is removed from the ovens below, human contact is kept at a minimum.

The process follows the usual stages of baking with a single exception: precision. Each piece of machinery, in which the bread remains immobile during the operation, is equipped with a stop-alarm clock for split-second accuracy. While home baking and most routine commercial baking is based on "intuition," army technic demands that temperature and moisture in the "proofing" chambers, as well as the ovens, is thermostatically controlled.

"Proofing" is the baking term for the basic process in bread making: the operation of the yeast on the glutin to cause the rising. Simplified, the entire operations consists of five steps: (1) pouring the ingredients into the mixer; (2) removing the raw dough to a large vat and allowing it to "proof"; (3) removal to a dividing machine which automatically separates the dough into proper quantities for baking in loaf form; (4) transfer to the lower level where the "proofing" is repeated for the individual segments, and (5) the actual baking.

When the dough is removed from the last proofing chamber and placed in the oven, it has risen to a delicate, quivering mass, which will "drop" at the slightest jar, producing a "half loaf" of heavy, tasteless bread. The same hands that moved the huge vats must now rapidly and gently handle this tricky, unpredictable mass. But, of thousands of loaves, not more than one or two will drop. With such large-scale production, it would be expected that the result, if wholesome and edible, would not be overly flavorful. However, the scientific precision of production matches the absent "personal touch" and results in almost countless loaves of bread with a sweetness and lightness uncommon to ordinary "store bread."

Of course, in such a process, the human equation must enter somewhere. In the "hot stone" ovens, once in general use but now largely replaced at the army-post by the rotary oven, there are usually "hot spots," places where the stones are hottest. The more alert students will soon discover these spots and shift the bread with clever timing to avoid "over baking."

The emphasis of this bread making process in the army as a full-time job reflects the "staff of life" theory which has been adopted. If the United States army, like Napoleon's once did, "travels on its stomach," that stomach will be adequately stocked with wholesome bread.

However, operations are directed in the field and in maneuvers in the kitchen the emphasis is on keeping the soldier "happy" rather than "well," because army dietitians know that the utility of food is greatly enhanced by a receptive frame of mind. The old theory of "give the boy what is good for him and let him eat it or starve" is enlarged and supplanted by the more rational theory of "give the boy what he likes and what is good for him."

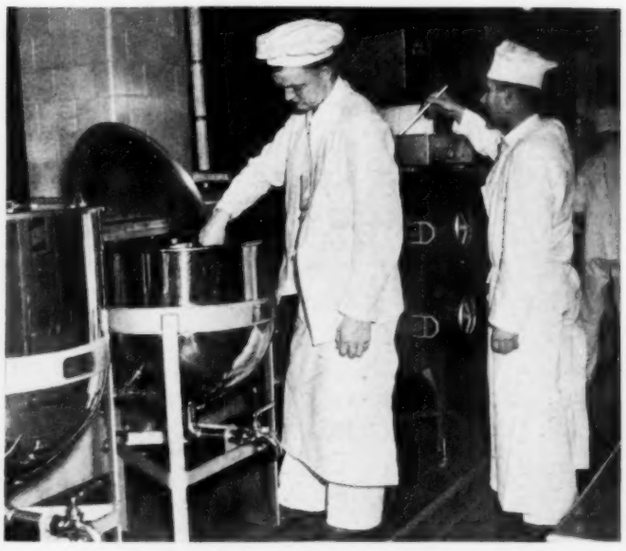
In recognition of this principle and aware that bread, however wholesome and tasty, is still bread, the army has provided a smaller, but not less important, pastry bakery.

Here the range of production extends from the common, toothsome cupcake to giant 20 or 30 pound wedding cake. Artistry has its place here, but it is seconded by a series of exact recipes, measured to the last ounce on regulation scales. No different from civilian is the army palate, and cake tickles it.

Store rooms are well filled with staples, but the army uses relatively few canned supplies.

Army post kitchens have special salad tables; greens and vegetables are exceptionally fresh.

Meats are bought in bulk, are cut when needed Menus are based on a half pound for each man.



For stews and soups, army chefs must use both 25 and 50 gallon kettles and pressure cookers.

Service is cafeteria style; men select food they desire. Each man may eat as much as he likes, but army rules do not allow half-eaten dishes.

All photographs from Fort Sheridan by Stephen Deutch

The essential, apparent difference in organization between the kitchen and the bakery is that there is more of the army about the kitchen. While each step is an entity in itself in the bakery, in the kitchen every process is interrelated and must result three times daily in a balanced and appetizing meal. The range must be coordinated with the store room, the green table with the range, the dishwashers with the servers. That requires a general in active and direct charge of operations: Enter the mess sergeant.

When the rookie cook comes to the school, before he can touch a pot or even lift a ladle, he must know something of what he is going to be, and of the materials he will handle, as well as how to fit himself smoothly into the whole picture. He is taught that carbohydrates with its subordinates, sugar and starch, furnish energy as do the fats; that proteins and minerals build sound bodies, and that vitamins and bulk protect health. He learns that a combination of these factors, in intelligent proportions, supplies the "balanced meal."

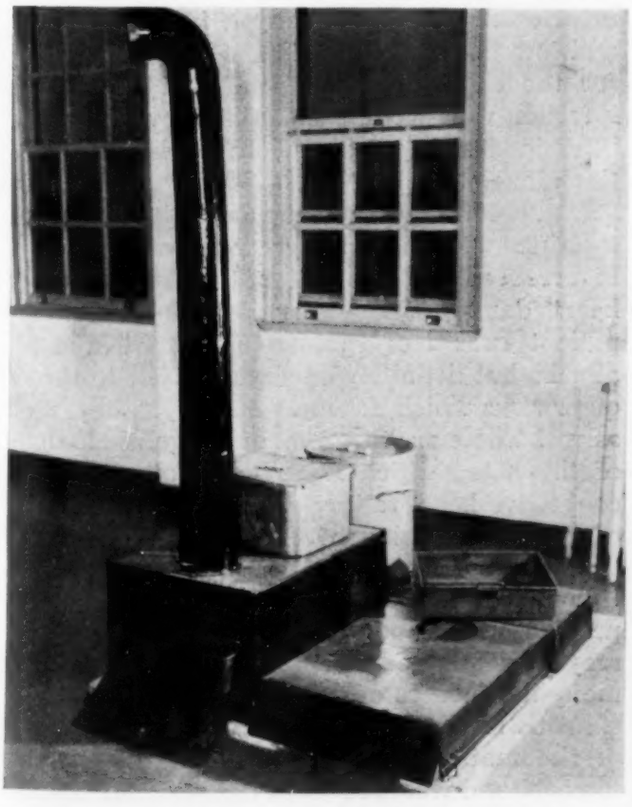
The trainee soon begins to learn the fundamentals of the kitchen. He discovers that the army kitchen is divided into definite and distinct departments; that these sections must be coordinated to produce the whole meal. He also learns that each utensil has its own place, and so does he. Both must be kept where they belong.

From charts in the classroom he is taught the various parts of an animal's carcass; in the kitchen he learns to cut and prepare these portions for cooking. The essential purpose of cooking, he is taught, is to make food more appetizing. From simple but thorough tables, as accurate and precise as baking measurements, he learns recipes, seasoning measurements, temperatures and timing. Ranges are equipped with thermostatic controls similar to those on the baking kilns.

Like the baker, he learns that cleanliness is not a desirable; it is a "must" in the army kitchen.

Waste is not allowed. Specific orders provide for the dispensation of garbage either for animal food or, as in the case of inedibles such as egg shells, coffee grounds, etc., for incineration. The ashes will be used for other purposes.

Menu planning is studied by all students, but more particularly by those super-cooks who are on the road to a mess sergeancy. Here economy must combine with health and savoriness as standard to be met. The army feeds its men on 39 cents a day far better than the average office *(Continued on page 1117)*



Field kitchens developed for World War I burned wood, were cumbersome and difficult to operate.

The new unit is in 3 parts, may be divided and used independently. Gasoline is used for fuel

Not even the earliest possible therapy can restore original status to vital body organs invaded by rheumatic germs, say

JOSEPH HARVEY and GEORGE SCHWARTZ

RHEUMATIC

ONE of the most important and difficult problems of medicine today is that of rheumatic heart disease and rheumatic fever, a common but serious disease. The true prevalence of this malady is unknown, since unlike the scarlet fevers and diphtherias, it is not a reportable disease. Also unknown is its crippling effect on children and young adults. Nevertheless, experience shows that rheumatic fever ranks high among the most severe diseases, even higher than tuberculosis and syphilis.

Rheumatic infections are manifested not as a single, definite ailment, but rather as a widespread and chronic reaction of all body tissues. Thus, perhaps, a more proper term for rheumatism is the "rheumatic state."

Examinations of children in various schools have furnished some appalling facts: 80 per cent of the total, organic heart disease of school children is rheumatic heart disease. This becomes an important problem when we consider that 3 out of every 100 children are sufferers. And the significance is even more marked when we realize the greatly increased death rate associated with this disease. These numerical averages are rough estimations, for the work of many investigators is still unrecorded.

The rheumatic state seems to be more prevalent among those persons in poor hygienic surroundings and in poorer districts. In one large city it has been found that this disease is eight times more frequent in those children attending schools in the poorer districts than in those attending private schools. The assembled facts indicate that poverty, malnutrition and unhygienic surroundings are the most favorable soil for the development of rheumatic infections.

Granting these environmental affects, it is also true that there will be a tendency, in large families in these areas, to have more than one member affected. Research figures show that incidence in these so-called rheumatic families varies from 8 to 20 per cent. Thus, environment as well as close contact with other members of the family may spread the infection.

The factor of recurrence in families is important, for should a child in this type of family complain of "growing pains," fail to gain weight, have unexplained fever and possess "functional" heart murmurs, he should be given a thorough physical examination to determine the exact nature of his illness. This protection is not only for that child, but also for the other members of the family.

The greatest number of first attacks of this disease occur between the ages of 5 and 12, the peak coming at about 7 years of age. It is rare under 2 and uncommon after 40. The signs and symptoms of rheumatic fever differ with age groups but rheumatic heart disease always begins with a bacterial invasion of the heart. The earlier in life the heart involvement occurs, the more serious is the infection and the shorter is the patient's life. It is usual for the child to survive the first rheumatic infection whether it is rheumatic fever, chorea, ill-defined sickness or rheumatic heart infection alone.

Recurrent infection is the damaging factor in the rheumatic state; the greater the number of recurrences of the infection, the greater is the heart damage. However, in adult life the patient runs less risk from new rheumatic attacks but definitely exposes himself to three other risks which are most dangerous in themselves. These are the onset of irregular rhythm of the heart which leads to a failing heart, congestive heart failure, and a direct invasion of the inner lining of the heart which is a most serious illness.

It is an old theory that cold and dampness predispose the body to rheumatic fever. This may be explained by the fact that there are many more cases of colds, grip, tonsillitis and sinusitis in a cold and damp climate. Attacks of rheumatic fever occur most frequently in the cold and wet months of the year, the maximum occurring in the late winter and early spring.

INFECTIONS

One of the first essentials in the after-care of the rheumatic patient is a cessation of physical activity.

The cause of the rheumatic infection which plays such havoc in the heart is not yet clear, but undoubtedly it is due to a group of allied germs which find their way into the body in one or more of many ways. The tonsils are considered to be a principal site of original infection which is then carried to the heart by the blood stream. Infections of the sinuses, ears, stomach and intestines have also been considered as possible avenues of infection.

The signs and symptoms of this disease usually appear in childhood, following an upper respiratory infection such as tonsillitis or grip. It manifests itself either as a sudden acute or prolonged chronic illness during which the entire body is affected. But most seriously does the rheumatic effect damage the heart. It is an accepted fact that patients once affected with this disease are prone to have similar attacks recur, and that each subsequent attack damages the heart more seriously. The probable activity of rheumatic infection may be likened to a pile of leaves that have been raked together in the autumn and ignited. Occasionally it will burst into flame and be entirely consumed, or will burn slowly for a

while and then die out. Usually, however, it will smolder underneath and as each new gust of wind happens along, will flare up or smolder more quickly—apparently lying dormant but underneath the top layer of untouched leaves the flame smolders, eating away at the core of the pile, insidiously spreading and feeding, hopefully waiting for another breeze to fan its vehemence into being. The quick consumption by fire is akin to the acute stage of the rheumatic infection, the gusts of wind to the reinfection of the disease as by grip, pneumonias or other upper respiratory infections, and the smoldering to the dormant or chronic stage.

No emphasis can be placed on the number or the apparent severity of recurrent attacks, since no two attacks in different people are similar in the amount of damage done to the heart. Thus, two severe episodes might produce just as fatal a result as several moderately severe ones, but this cannot be appreciably recognized in the examinations at the bedside or in the office.

The symptoms of children include growing pains, a red skin rash, unexplained and periodic attacks of fever, failure to gain weight, frequent nose bleeds and either a rapid or slowly developing heart ailment. The involvement of one joint or many joints may occur in children but is often absent and generally milder than in adults. This difference of symptoms is definitely demonstrated in families in which two or three members of different ages are attacked by the disease.

The course of rheumatic fever may fall into one of four groups:

1. Merely a single attack of rheumatic fever which produces a moderate amount of heart damage and with no subsequent attacks. The length of life in this type depends upon the extent of damage done to the heart, and in many cases this type of patient may continue his daily activities far beyond the average expectancy of life for rheumatic patients. In a series of cases there were some who attained the age of 60, but unfortunately only 1 to 2 per cent fall in this category.

2. Recurrent attacks of rheumatic fever with added damage to the heart in each recurrence. Generally, the greater the number of attacks the shorter the life expectancy. But sometimes attacks differ in their severity, thus causing greater or lesser heart damage.

3. Continuous low grades of rheumatic fever bouts which produce slowly progressive and damaging changes in the heart. This group and the second group occur most frequently.

4. Attacks sufficiently acute and severe producing a dreaded illness with the ultimate result coming within a few days. Young children are particularly prone to acquire this most virulent form of rheumatic fever.

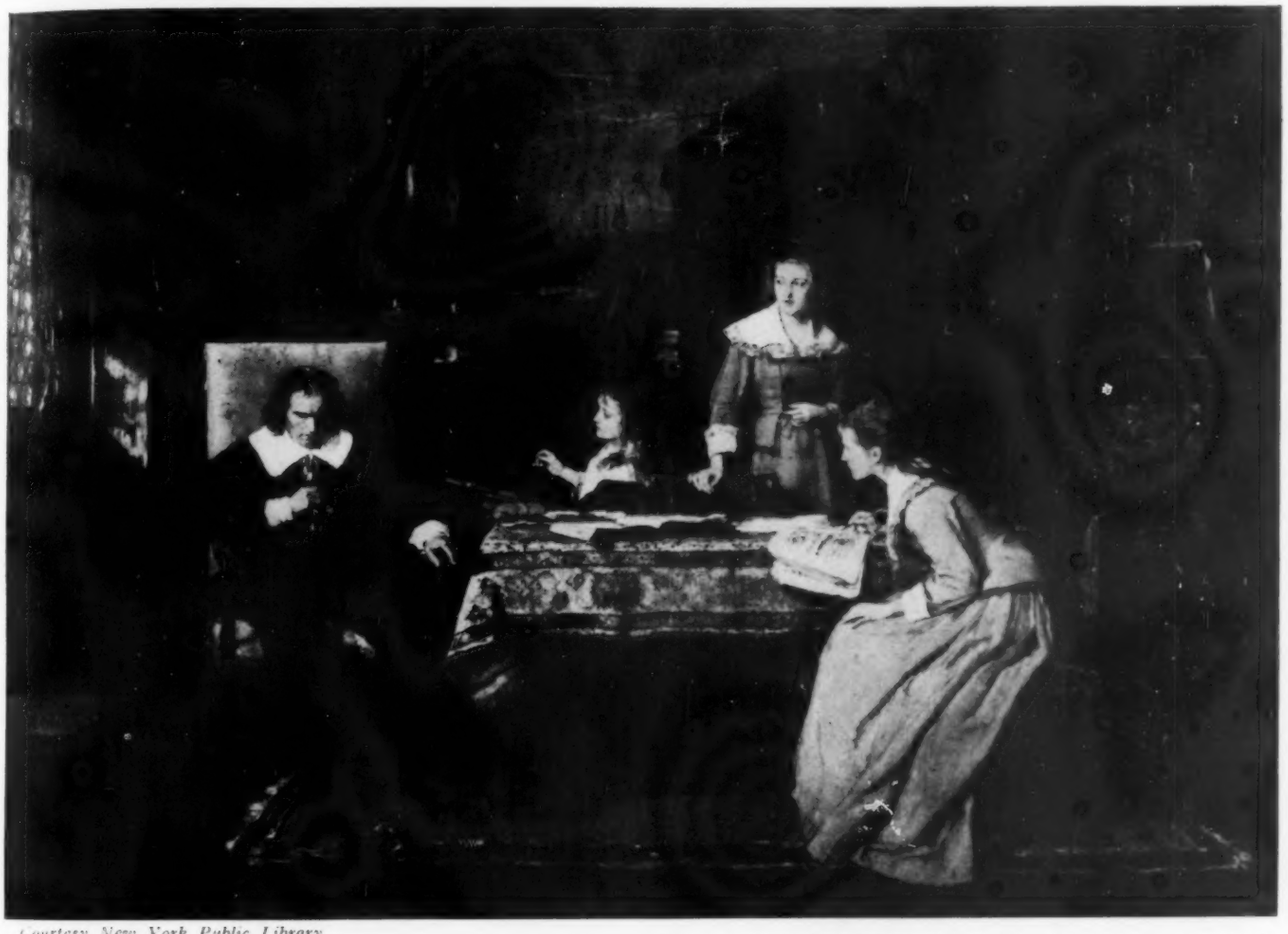
Complications occur frequently and must be considered in regard to the course and activities of the rheumatic patient. About 6 per cent of all cases become afflicted with an acute invasion by the so-called rheumatic germ in all body tissues, the blood stream, and, in particular, within the inner lining of the heart. Intercurrent infections, particularly the pneumonias and grip, are a definite life hazard. When a few particles of the rheumatic growth on the inner lining of the heart break off and travel in the blood stream into the smaller arteries, an illness, commonly called a stroke, occurs. This type accounts for 10 per cent of the deaths resulting from this disease. As the heart disease reaches a more advanced stage, irregular rhythm sets in and the duration of life in average cases is about three years, although there are many cases in which the patient lives for many years in comparative comfort. An irregular pulse, rapid in character, is a result of the harassed muscle of the heart functioning at a speed which is unnecessarily great and tiring. If the pulse rate is diminished (accomplished by the use of various drugs such as digitalis and quinidine), then the aching muscle of the heart can recuperate and avoid the strain which will eventually cause it to fail.

Occasionally, the patient may expectorate blood, a possible result of the increased back-pressure within the lungs, due to the failing heart. An infarct (dead tissue area, resulting from lack of circulation) may develop, causing bloody expectoration and usually associated with a sharp pain in the chest wall and a rise in temperature. This dead tissue area develops when vegetation, growing on the inner lining of the heart as the result of a rheumatic infection, breaks off and is carried by the blood stream to the opening of a blood vessel. There, if sufficiently large, it blocks the circulation to the area involved and causes the surrounding tissue to die. Sometimes, a chamber of the heart may become so enlarged that it presses on one of the nerves in the vicinity. Pressure is thus created on the recurrent nerve controlling the vocal cords. It is usually the left nerve that is so afflicted, resulting in immobility of the left vocal cord and hoarseness.

Some important events in the course of the disease which will give an insight to the eventual outcome of *(Continued on page 1110)*

A Thief in the Night

By DANIEL B. KIRBY



Courtesy New York Public Library

Many eye specialists believe that Milton, the poet, was blinded by glaucoma. Here he is shown dictating "Paradise Lost" to his daughter.

OF THE PHYSICAL qualities that have been given us, the one we value most is vision. It seems odd, therefore, that we take relatively little trouble to guard properly that most precious gift, which, like other priceless things, must be guarded or it may be lost. "I would rather be dead than blind" is often heard. Yet, there is one frequent cause of blindness which is usually guarded against inadequately. It may destroy vision in a single attack, or stealthily through the years it may rob the victim of his sight without his knowledge.

Since this cause of human blindness, glaucoma, needs increased pressure within the eye to destroy sight, most of its ravages take place in times of emotional stress and in a period before the dawn when the pressure of the fluids within the eye is greatest.

Many persons hear the word glaucoma * for the first time when a sudden cloudiness of vision sends them to the oculist. If they search for a definition, they find that glaucoma is "an affection of the eye, resulting in ultimate blindness." The shock to the victim is not unlike that from a verdict of cancer. The two conditions are similar in some ways: one, if uncontrolled, causes pain and blindness; the other, pain and death. But both diseases, if detected in time and adequately treated, may be checked and cured.

* The blindness suffered by the heroine in "Dark Victory," caused by a tumorous growth, glioma, is not to be confused with glaucoma.

Tobias' affliction was sudden. The massage cure, upper right, also indicates glaucoma.

The true and liuely Pourtraicture of Valentine Greatrakes Esq:
of Affane in ye County of Waterford in ye Kingdome of Ireland
famous for curing several Deseases and distempers
by the stroak of his Hand only.

As depicted in the old engraving, at bottom, the physical method of treatment was common.

The Greeks had a word for it; they gave this disease its name from the greenish reflex that emanates from the pupil of the eye it has blinded. Now, however, glaucoma is used to describe all stages of this disease, not merely the final phase when the eye has become inflamed to a deep red while the window of the eye is dull, lusterless, steamy and vision is completely destroyed. It is also used to designate any other condition in which the pressure within the eyeball has increased.

Perhaps the easiest way to understand glaucoma is to think of the eye as a sac, made of relatively inelastic material. Inside this sac is a watery and a jelly-like substance as well as important structures for vision, such as the iris diaphragm, lens, retina and collection of blood vessels in membranous form. The pressure of the fluid in the eye is maintained at normal levels by a four-

fold adjustment, consisting of the amount of blood which is permitted to flow into the eye, the composition of both the watery and jelly-like substances, and the fluid which is removed from the eye through normal canals. These factors are delicately controlled by the automatic or sympathetic nervous system. Therefore, this pressure is not directly under voluntary control, but is affected by stimulants such as the caffein in coffee or tea, by emotions, glandular secretions, composition of the blood and other factors not completely understood.

Patients, unguided and unhelped, or treated by persons not trained in the detection, recognition and modern treatment of glaucoma, are inevitably destined for blindness. With early recognition, proper treatment and supervision, the condition is serious but the prospects for recovery are usually excellent and useful vision can be maintained. A knowledge of the early symptoms of glaucoma is essential so that timely, remedial measures may be taken while they are still of great value.

How can glaucoma be recognized? What signs and symptoms should prompt consultation with an oculist (an eye physician who is a doctor of medicine, especially qualified in the treatment of eye diseases) for an examination that will indicate with certainty whether or not the condition exists? There are two forms of glaucoma; one acute and painful, and the other without inflammation and without pain. The severely painful type often comes without much warning or after the original warning signs have been ignored and neglected. The vision becomes hazy, misty; everything becomes dull and dark; colors become obscured and vision is similar to that in a dense fog. Haloes and colored rings form around light sources, and, finally, vision is diminished sufficiently so that it is difficult to distinguish even these. The pain is severe, dull, aching; radiating to the temples and head. One or both eyes may be affected and the trouble may seem to be of a bilious nature or due to a stomach or gall-bladder disorder.

The second form of the disease is insidious, often at work for a long period of time and during which the victim is unaware of a gradual loss of vision. In these cases there are no other symptoms to indicate the approach of this disease. Only the watchful eye physician, thorough in his routine examination and constantly searching for glaucoma, will discover this symptom before the increased internal eye pressure has existed long enough to cause permanent damage. One method of determining eye presure is to feel the eyes with sensitive fingers. This gives the trained and experienced eye physician a relative measure, to be confirmed by a tonometer, a delicate, reliable instrument for determining pressure within the eyes. With this aid, glaucoma may be detected before the numerous, later symptoms develop.

Since the acute, central (reading) vision is not impaired until glaucoma is well-advanced, the victim is not aware of the progress of the disease, and of the gradual and irregular loss of his field of vision. He may be able to read quite well and still, in unfamiliar surroundings, be almost blind. An example of this condition, not infrequent in glaucoma, is the case of the beggar who received alms because he was blind, and was later found reading fine print. He was taken to court as an impostor, but actually he suffered from glaucoma. His central vision, for reading, was still good but he was blind to any object away from the center of his vision.

Many persons have complained of eye strain, redness of the eyes, *(Continued on page 1091)*

The MIRACLE of PLASMA

By EDITH ROBERTS

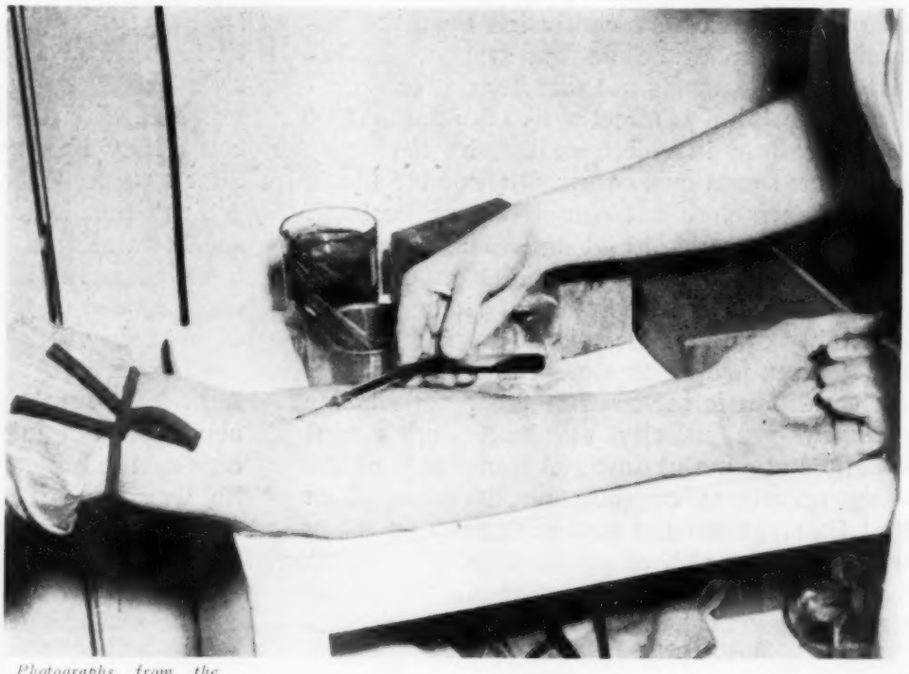
THE BALANCE SHEET of war presents strange extremes—man's most savage, destructive brutalities opposed to the supreme ingenuities of his tender fellow feeling. So out of the cruel necessities of war has come one blessing—the life-saving transfer of blood "plasma" from a healthy donor to a wounded sufferer thousands of miles away. This new method, which might be called transfusion by clipper plane, is an angel of mercy in time of disaster, and has enabled generous Americans to send their life's blood overseas to fight and endure in British veins. It represents a tremendous step forward in medical science as well as international good will.

Plasma, in brief, is the liquid portion or fraction of blood, remaining after the red and white corpuscles are removed. The injection of plasma has been proven valuable in the treatment of sudden acute hemorrhage, burns, and other conditions, but is particularly effective in the treatment of "traumatic shock." Behind these two simple statements lies a thrilling story, of vital significance to the entire human race whether engaged in war or peace.

The importance of plasma will be instantly recognized when we realize that traumatic shock—in addition to hemorrhage—is not only the commonest cause of death on the battlefield and among bombed civilian populations, but also the cause of death in all kinds of peace-time explosions, storms, wrecks and accidents. Sometimes it even takes its toll in the operating room, as the surgeon's instruments penetrate on their benign mission. In fact, traumatic shock may result whenever the tissues of the body have been injured.

So numerous were the casualties from traumatic shock in the World War, and so little was it understood, that the Surgeon-General of the United States Army appointed a commission to study it. This commission was headed by Dr. Walter B. Cannon of Harvard, who ever since has devoted himself to the study of the replacement of protein in the blood following surgical shock. He is undoubtedly the outstanding authority on the subject.

Traumatic shock is explained as follows: When the tissues of the body are injured, a chemical is liberated. This as yet unnamed chemical, acting like the known chemical histamine, penetrates the walls of the capillaries, the minute vessels in the tissues. It poisons and paralyzes these capillaries, permitting leakage of the plasma of the blood. The plasma, which contains vital proteins, must rapidly be replaced; otherwise, proper blood circulation is impaired, the tissues do not receive oxygen or nutrition, and death ensues rapidly. Rapid restoration of plasma to the victim's blood supply, therefore, is of paramount importance to save life.



Photographs from the Deutch Serum Center, Michael Reese Hospital

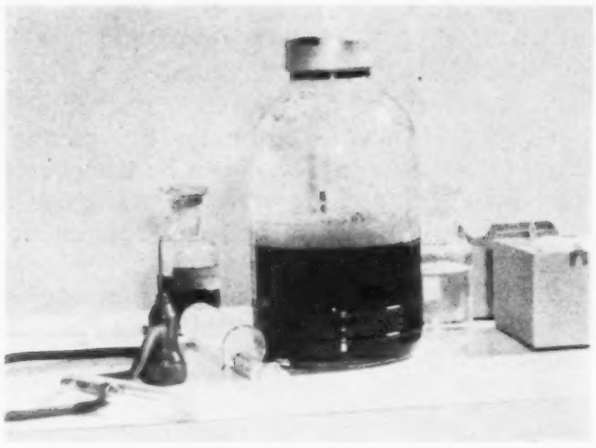
A small specimen of donor's blood is removed for Kline test before actual drawing begins.

The difficulty, almost impossibility, of direct blood transfusion at the scene of any great disaster which shatters human bodies is evident, whether it be a battlefield, a bombed city, a wrecked train, an industrial explosion, or a storm-racked countryside. It is almost equally impossible to effect the necessary transfusion with blood which has been donated and preserved, for the simple reason that, after a very few days outside the body, whole blood deteriorates, its cells break down, and it cannot be transported and used.

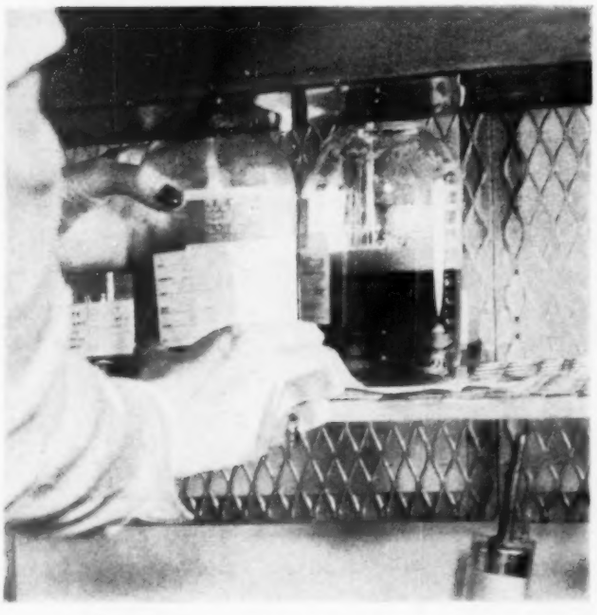
This is where plasma enters the picture. For unlike whole blood, plasma does not have to be "grouped" or "typed" as whole blood must be before transfusion, else the result may be fatal. Plasma from one human being can be given to any other; plasma can be transported long distances and preserved for a year or more. It can even be dried and re-dissolved.

Under the fearful stress of the present conflict, there is being developed and perfected an astounding technique for collecting and distributing human plasma in quantity.

Blood is removed directly into a vacuum bottle. By regulating valve at top, as much as a pint may be drawn in approximately five minutes.



Blood cells soon begin to settle, leaving the clear plasma at top. Valve is shown at left.



Plasmas are stored in ice box at 38 F., may be kept for a year. Blood limit is only a week.

Last May the British Red Cross cabled the American Red Cross for donations of human plasma. In response to this call there began a great new humanitarian movement, breath-taking in its present drama and its implications for the future.

With the United States pledged to give Great Britain "every aid short of war," we are now actually sending our blood—the most intimate and precious of all possible gifts, quarts upon quarts of it—to save the lives of our brothers fighting in the front line of democracy. Over 8,000 American men and women have given their blood for Britain since the first appeal last August. Thousands more will do so, to aid Britain and America, for the American Red Cross plans to build up a vast store of plasma as a measure of national defense, and also against future disasters. In time the most remote country doctor will be able to have a store of plasma in his medicine chest in readiness for any possible emergency.

At present blood plasma is being accepted from donors only in New York City. But as the technique of its collection in quantity is perfected, the movement will be extended from coast to coast. The American Red Cross and the Blood Transfusion Betterment Association, which had already done considerable preliminary research in this field, have jointly appropriated the necessary funds. The Plasma Division of the B.T.B.A. supervises the collection, which is carried on at present in 10 hospitals by volunteer doctors, nurses, and other workers. The Red Cross solicits donors, handles publicity, and undertakes the shipment and delivery of the plasma to England. The actual collection of plasma was begun in the latter part of August, and the first shipment was made in September.

The need must be great, for one cable alone from the British Government asked for the blood from 20,000 donors in thirty days! At present blood is being taken from about 1,000 donors a week, who are about equally divided between men and women, and represent an amazing cross section of the American melting pot. More will be accepted as soon as facilities are available. Donors must be between 21 and 60. They are ineligible if they have recently had an infectious disease, or have ever had tuberculosis, malaria or syphilis.

When a donor arrives at the hospital, a nurse takes his temperature and his blood pressure, and records the percentage of his hemoglobin. Preliminary samples of his blood are taken, one for typing it as a matter of record, the second for the Kline syphilis test. The operation itself is brief and simple, though an atmosphere of restrained drama surrounds the procedure. The donor lies down. After injecting a little novocaine into his arm, the doctor inserts a hollow needle in a vein at the elbow, and a pint of blood is painlessly drawn off into a sterile bottle. The slight puncture is taped, and the donor is asked to rest a short time before going on his way, which he soon does, usually feeling as fit as ever. A man weighing 200 pounds will have about 9 quarts of blood, from which he gives a pint. He will again be acceptable as a donor in about five weeks, if he desires to contribute another pint.

The spirit in which donors are giving their blood is touching. There was the woman who remarked simply: "I came because it seemed my duty. It is so easy at this end, so hard at the other."

There was the diffident young chap who said —as so many have said—"I haven't any money to give, and I feel I must give something."

An Englishman explained: "If I can't be home, I'll be as near as I can."

"What's a pint of blood here?" cried another. "I'd give my life to see Hitler's head hanging from a tree! I mean it." And it was evident that he did.

There was the little French woman at the Memorial Hospital, the first donor after the members of the staff themselves. "Take more," she kept imploring, "take more!"

There was the blind woman in her fifties, one of the earliest to volunteer, who said: "This is the first time I've been able to do something for someone else."

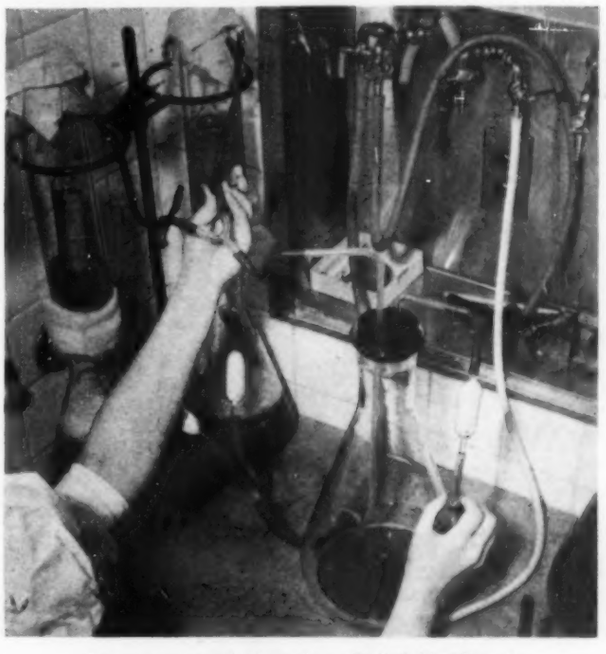
There was the blind man, too, who used his last nickel to telephone for an appointment and was cut off before he could conclude the arrangement; there was Her Highness the Ranee of Sarawak; there was A. Newbold Morris, President of the New York City Council; there were the 810 W.P.A. workers from Staten Island; the 600 employees of the Furness-Withy Steamship Line who volunteered in a body; there were the mothers of R.A.F. pilots who, as soon as they heard about it, rushed down to give their blood and were heartbroken when refused because of age; there was the bedridden woman who volunteered to do her bit by telephoning everyone she knew; there were Jewish refugees; there was a French count, followed by two Swedes—there was America eagerly offering its blood for Britain, for humanity . . .

And thus is being built up an organization which will be able to provide human plasma in quantity for our own Army and Navy as a vital defense measure.

Once drawn from the donor, the blood is sealed in a sterile flask, and placed in a refrigerator where it remains for seven days until the corpuscles have settled. In the meantime a culture is taken to discover any possible contamination.

At the end of seven days the plasma, about half a pint, is drawn off from the flask and pooled with plasma from other donors in a large sterile bottle. A second culture is taken to guard against infection of the plasma, and held for seven days. After this a half-and-half mixture of plasma and salt solution is transferred to liter vacuum bottles. This final mixture is again held for seven days, then cultured for sterility. Each of these bottles is capped by a metal disk, under which are two latex disks, under *(Continued on page 1082)*

Sterility tests are made on individual samples to insure freedom from bacterial contamination.



Serum is forced through a Berkefeld filter to remove any solid material which may be present.

Containers, sterile and hermetically sealed are filled to be stored or used immediately

By **FLORENCE KERR**

The W P A

SAVORY STEW, thick with chopped beef, celery, onions and tomatoes; golden corn muffins; a cup of quivery, colorful gelatin dessert. Scalloped sweet corn with yellow cheese; lettuce on whole wheat sandwiches; a Satsuma plum in its own sirup. Each meal topped off with a glass of milk.

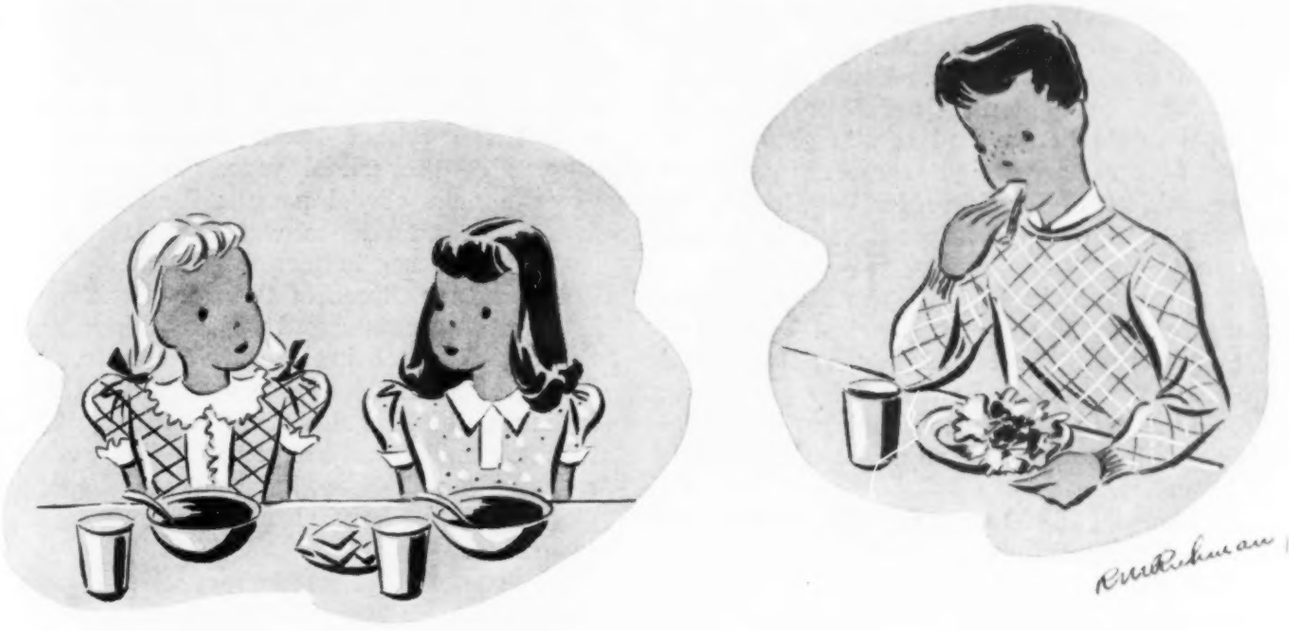
These two menus, one from Connecticut, the other from Florida, are typical of the midday meals prepared and served daily by WPA school-lunch workers to over a million school children whose home fare does not provide them with the food necessary to their growth and development. Menus vary from day to day, but there is always something appetizing and body-building. Nearly always there is milk, or a dish prepared with milk in some form.

Different sections of the country stress certain foods. For their starchy vegetables, the South plays up rice and sweet potatoes, while the North and West think up new ways to make the Irish potato attractive to eye and palate. Children in rural schools of the South and Southwest can enjoy a midday dinner of turnip greens and young turnips, cooked with bacon rinds and served with cornbread and buttermilk, while their city contemporaries sit down with equal zest to a lunch of hamburger meat balls, mashed potatoes, cole slaw and fruit salad molded in gelatin. Delectable whiffs of fish chowder beckon young New Englanders into the school lunchroom on winter days, while scalloped potatoes, green salad, and apple crisp make the noonday meal something to look forward to for school children of the Pacific Coast States.

None of them expensive, these WPA school lunches depend for their value on the careful selection and combination of foods, and the appetizing manner in which these foods are prepared and served.

Boards of Education or County Commissioners generally sponsor the School Lunch Project, but civic clubs, community organizations, and individual citizens supply many of the products used in the preparation of the meals. Some projects have WPA school gardens and canneries. Also, the Surplus Marketing Administration contributes a proportion of such foods as flour, meal, breakfast cereals, rice, beans, dried peas, dried and evaporated milk, raisins, prunes, apples, butter, eggs and citrous fruits. Only a small percentage of WPA funds is spent for foods, or for any other than labor costs.

Trained home economists, or experienced dietitians, supervise the work of most of these



SCHOOL LUNCH

projects. Wherever they are available, such trained and experienced workers are chosen from the ranks of the needy unemployed.

Grade teachers have long observed that children who evidently have poor food at home, and nothing better at school, do not make satisfactory progress. In the classroom they are either fidgety and nervous, or dull and listless. They cannot concentrate on their lessons and they are not interested in school sports. School has no attraction for them. They stay away as much as they can.

No exact information is available by which to determine how many American school children suffer from malnutrition, but the Surgeon General of the United States Public Health Service, Thomas Parran, says that dietary deficiency is widespread and serious, with more than 40 per cent of the population on inadequate rations. In their study of the needy in rural areas the authors of "Seven Lean Years" (Chapel Hill, N. C., 1939) assert that in the peak month of those "lean years"—February 1935—three and a half million children under 16 years of age were on rural relief rolls.

In their research, these authors found that children of the very poor were always at a disadvantage with respect to their school work. They add: "Both in relief families and in families barely able to keep off relief, children are at a peculiar disadvantage where their medical, dental, and dietary needs are concerned. The recent nation-wide health survey showed greater incidence of sickness among the poor than among well-to-do families."

No long rows of figures are at hand to show how well balanced school lunches have reduced sickness, increased physical and mental stamina, produced more regular attendance and improved discipline and the quality of school work. Still, there is every reason to believe that these things are true. There are weight records, some of them showing loss of weight during the school vacation and quick gains after the school lunch is resumed. There are also records, direct from States having the WPA school lunch project, indicative of good results obtained in the promotion of individual and community health.

In Arizona, where the dry, clear air attracts tuberculous sufferers year in and year out, the need for a hot, nourishing lunch at school increases in the winter time, especially with Mexican children whose breakfast often consists of a tortilla and a cup of coffee. From Tucson, a teacher wrote that in October the school nurse had found a number of children

underweight, running a little fever daily, having low blood counts, and showing a positive reaction to tuberculin tests. A supervised feeding project brought most satisfactory results: Checks made at the end of the school year showed increased weights and normal temperatures, negligible skin infections, less delinquency, and decided improvement in school work.

A school principal of El Paso county, Colorado, commenting on the physical benefits of the program said that the children of his school no longer seemed to be caught by epidemics. "Regularity in attendance and resistance to disease," he affirmed, "are a marked result of hot lunches."

In Georgia, 15,000 pupils of the Atlanta and Fulton county schools were served free midday meals by the WPA school lunch program through the last school year. Reports are to the effect that teachers and parents alike praise the program for its fine effect on the children, and the better school work that has resulted. In the Columbus district the welfare bureau requested a summer lunch program for a mill village school, where the children cannot get, at home, the food necessary to keep them in normal health.

It is not always just the financially underprivileged child who is benefited by the nutritious and thoughtfully prepared WPA school lunch. A report from Kansas, where drought, insects and dust storms cause extensive crop loss and consequent privation, brings the story of a prosperous farmer's son who owes a lot to this program. The boy had a severe bronchial condition which made his attendance at school most irregular. He was much underweight. When he could go to school at all, he always took with him a good lunch, which he seldom touched. Last winter his parents contributed to the school lunch project, and their son ate with the underprivileged children. Soon he was cleaning up everything on his plate. He gained in health and in weight, and through the school year, missed only a few days.

A Massachusetts mayor wrote that the success of the School Lunch Project in his town was attested by the greatly improved health of the children of poor families, and the fact that even when school was not in session the majority of the children appeared for lunch at the regular time. "It seems to me," wrote this town official, "that more emphasis could be placed upon the fruitful results of the projects which meet human needs with human resources."

In a Missouri town, where the lunchrooms closed May 3, the school principal gave out a story to the papers in which he said that 17,432 malnourished children had been regularly served the school lunch through the last months of the school year. There was an average gain of 4.2 pounds for each child, and better attendance was supplemented by better health and better school work.

In Montana, home of the Fort Peck Indian Reservation, Indians and white children attend the same school in Roosevelt county. The WPA school lunch is the only hot meal the Indian children get during the day. Their teachers report that the young Indians, as well as the white children, have not only benefited physically, but have also gained in poise and assurance.

In exactly 93 New Jersey schools undernourished children consumed 2,276,903 hot lunches, prepared and served by WPA workers in the last school term. In addition to the daily lunch, but not taken at the same time, 37,500 quarts of cod liver oil were given by the tablespoon to children designated by school physicians as being in need of this supplementary strength-builder. On some units of the New Jersey school lunch project a health chart is kept for each child served. When sufficient progress is shown, attention is given to needier children suggested by doctors and welfare workers.

From Nebraska comes an incident of physical betterment in the case of an individual underprivileged child. A small boy from an impoverished home seemed unable to sit still, was always jerking and wriggling. He made no progress with his lessons, and was believed to have St. Vitus's dance. Sent to the school lunch table, at first he would not eat. Eventually he was induced to make a start. When the school year closed he was taking two helpings, and sometimes more. "And," his teacher reports, "he has got over his wiggles, and gets his lessons."

A young Navy recruit from South Carolina recently reported to his school that he was able to pass the examinations, and had received a high physical rating, because of the good lunches he had eaten every day at high school. The WPA school lunch project has operated in this high school since 1935.

From another South Carolina school comes the story of a child who, when she was 11 years old, was still in the first grade. She was anemic, and had poor vision. Becoming interested in the case, an eye specialist gave his services free. His diagnosis was *(Continued on page 1083)*

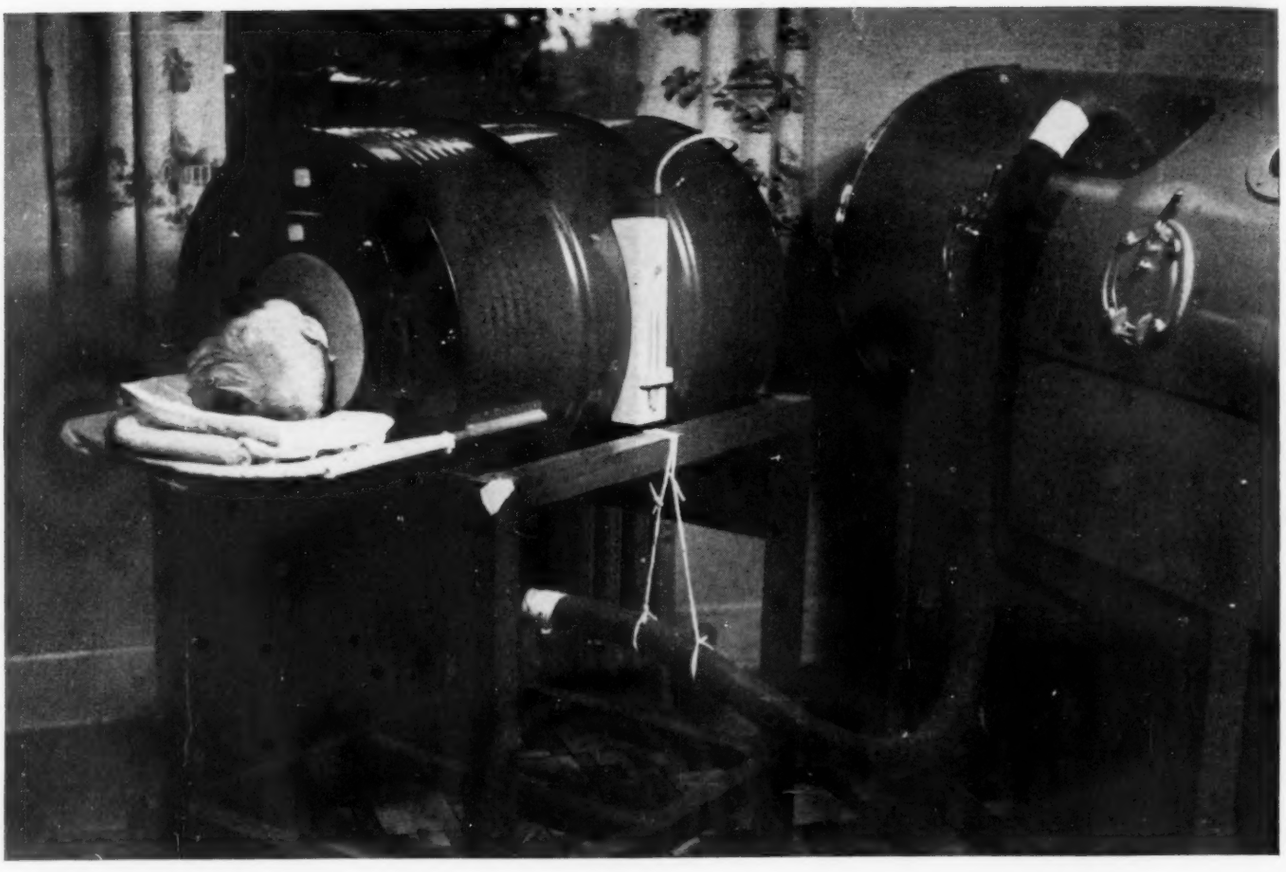
"Ideas flashed through my mind like a Neon sign. Respirators could be built but only hours were available for a task that needed days." Here is a result of those flashes: a lung, and a life that was saved.

Marquette Creates

IRON LUNGS for an EMERGENCY

By M. K. REYNOLDS

CALL the Coast Guard! Grand Marais, Michigan has a "Polio" patient for St. Lukes Hospital, Marquette, where an Iron Lung is available. No other means of transportation is at hand. Ninety miles to Marquette. But when the patient arrived, the lung was occupied. Borrow a fast station wagon and drive 180 miles to St. Ignace; a plane will be waiting. That's O.K. but there is fog at St. Ignace. Call back that ferry boat that is just pulling out! Yes, but there is not room for the station wagon on the boat. Run some of those cars off the ferry and make way for the station wagon. Call the State Police! We want an escort; 300 miles to go and the station wagon throttle is jammed against the floor. Sixty miles an hour through Detroit, with the escort sirens blaring, to Her-



For babies, respirators were made from oil drums and attached to a large, commercially made unit.

man Keefer Hospital, hoping there is still time to save the patient.

Nurse Sarah Kovamaki is a strong woman. That's why she was chosen, but she was white and shaking when that race was run. It will be a long time before Sarah's knees recover from the gruelling punishment they received. She administered manual artificial respiration for many weary miles in a jolting station wagon, traveling at its utmost speed. Frank Hartman, driver, and Kenneth Brami, orderly, did their part too.

Call an ambulance! Newberry, Michigan, has Polio patients for St. Luke's, Marquette. But the ambulance was not available. So Mrs. Cora Sherman chartered the local hearse and drafted a State Trooper to drive. One hundred miles later she delivered her patients at St. Luke's Hospital. Eight children, with shipping tags tied to their wrists for identification. One of them was dead.

Call the Fire Department! St. Luke's Hospital wants oxygen tents and anything to be had in the way of respirators.

Call the airport! Newberry has more polios for St. Luke's Hospital, but fog grounded the plane at Munising.

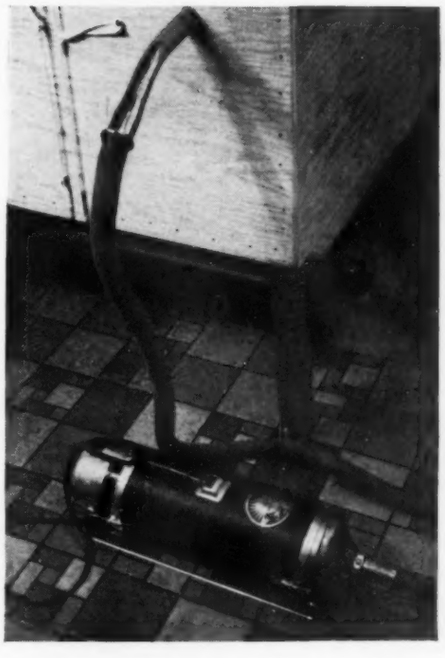
Call Detroit and Chicago! St. Luke's Hospital must have relief nurses for this epidemic; our own are sagging on their feet.

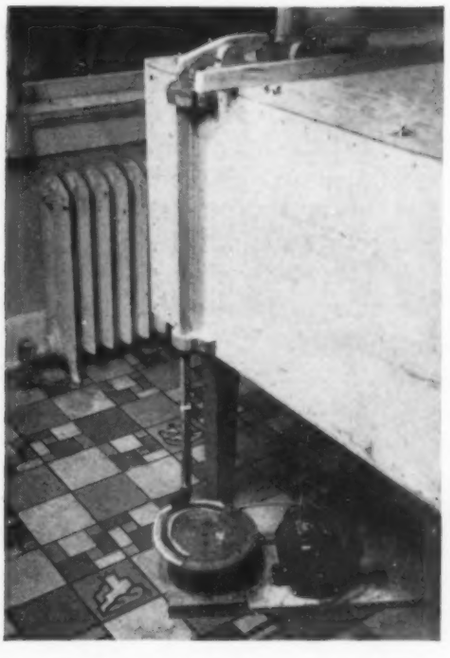
That was the way it started and that was the way it continued. They came from all points in the Northern Peninsula of Michigan, 300 miles of rather remote and sparsely settled country, bordering on Lake Superior, 500 miles from Detroit and over 400 from Chicago. They came in every type of conveyance and through the efforts of every agency. State Trooper Henry Saam drove for 30 consecutive hours, delivering Polio patients to St. Luke's Hospital.

St. Luke's Hospital in Marquette, Michigan, is closely associated with the State University Hospital at Ann Arbor. It is also intimately connected with the Northern Michigan Children's Clinic. Due to these associations and to its own efforts to maintain an efficient, well-managed institution, it has become a medical and clinical center for the whole Northern Peninsula of Michigan.

One Collins respirator was available early in the epidemic and was put into use shortly after its arrival. On August 29, the superintendent, Miss Mary Skeoch, sent word that she

Two patients with paralyzed intercostal muscles required either two lungs or one "double-barreled" one.





The mechanical needs of the new respirators were met with a household vacuum cleaner to supply the necessary vacuum, and a cam-operated push rod to manipulate the intake valve.

wished to consult me at the hospital, immediately. On my arrival she told me that she was much troubled over two patients who were showing symptoms of respiratory involvement. Her hope was that I could devise some method of introducing another patient into the Collins respirator. We took some measurements, but decided it was not practical to redesign and rebuild the lower end of the machine while a patient was in it. I went home with ideas flashing through my mind like a Neon sign, but they were all too elaborate. That big, shiny Collins "lung," bristling with gadgets, had me bluffed. I knew I could build a respirator, but it would take days and there were only hours at my disposal. I resurrected from our semi-scrap heap a big, positive, two cylinder, reciprocating, suction pump which had once operated an organ. I went to work on it with some of my crew, but was interrupted by the

hospital engineer, Lowell Reynolds, who brought with him some instructions, culled from a pediatric magazine. It recommended vacuum cleaners. That was the only inspiration we needed. We knew how to do the rest.

Some one drew a long breath of relief and said, 'Let's go." We went—eight of us; engineers, machinists, carpenters, ship-joiners, painters, sailmakers and errand boys, most of us cabinet makers of no mean ability, working in a well equipped boat repair shop, boasting a variety of power-driven tools for wood or metal and seldom found outside the research laboratories of large industrial plants.

Two patients with paralyzed intercostal muscles meant either two respirators or one "double-barreled" one. No time to build two units, so we took a chance. I doubted the ability of even a large household vacuum cleaner to "pull" a vacuum, equivalent to 15 centimeters of water, interrupted once every three seconds, in such a big box. But we had made our decision. Both patients were small children and we took advantage of this fact to make the box as small as possible. Our cabinet maker, Henry Hoffenbaker, and his assistant went to work making a wooden skeleton upon which to fasten the covering. Two more men cut a panel of half inch plywood to dimensions which would accurately cover the finished skeleton. The machinist and combination millwright-blacksmith undertook to design and install a flapper valve to interrupt the vacuum. Errand boys were dispatched for self-cementing sponge rubber weatherstripping to make the removable top of the box airtight. They were also sent for carriage bolts to draw this removable top down snug against the gasket. Wing or finger nuts were fitted to these carriage bolts to simplify this operation. Some one measured out and carefully mixed fresh casein glue with which to make all joints strong and airtight. Word came from the hospital to hurry; the patients were being given manual artificial respiration. From that point on, I have no recollection of any specific operation any one, including myself, performed on that respirator. My wife tells me she stood beside me at the power bandsaw and handed me pieces which had to be cut to circles, previously laid out. I cut the pieces and she handed them on for others to drill for the carriage bolts and attach to the apparatus. I know that there was no confusion or duplication of work. Most of us had worked together for ten years and we all seemed to drop naturally into those operations we had often performed and for which we were best fitted.

It was 3 p. m. when the hospital engineer appeared at the shop with his tentative data and suggestions. The completed respirator was on a truck, headed for the hospital at 6:45 p. m. One of the patients had died before we arrived, but still another was developing alarming respiratory symptoms and it was considered advisable to place him in the respirator. Some time was lost cutting neck gaskets from pieces of discarded automobile tube, installing bedding, hooking up the vacuum cleaner and improvising head supports. But in a short time both patients were in the respirator. A nurse at the manually operated flapper valve was counting in rhythm, established from the second-hand of a watch, "One hundred and one, one hundred and two; open, close. One hundred and one, one hundred and two; open, close." It was the duty of some one to operate this valve until a method could be found to work it mechancially. However, volunteers were plentiful and we had little to worry about on that score. A doctor looked at one of the patients and said in some dismay, "I think that child is dead." "No," another replied with a smile, "he is just in the sound sleep of utter exhaustion."

We got together and organized after that. It became apparent that an electrician and sheet metal worker were needed. We didn't have to urge them. Both "allowed" they were pretty busy, but any of their time we required was at our disposal. I called up my son, Ted, who was running a research laboratory in a chemical plant in Wisconsin, about 125 miles away. I knew he had a lot of reduction gears, variable speed pulleys and small motors. I asked him to look them up and be ready to rush them to us on short notice. Ted had been a Polio victim many years ago and he said "yes" he would do as I asked and hung up the receiver. Some hours later, three cars drew up at the shop—all of them loaded with equipment. Ted got out of one, his plant engineer, Lee Roberts, out of another, and his carpenter out of the third. Among other things, they had brought a large, electrically-driven blower. That blower is now being installed on a concrete foundation outside the hospital building and it should "drag" four or five respirator units.

But nurses and volunteers had been operating that flapper valve, manually, for over twenty-four hours. "One hundred and one, one hundred and two; open, close." So the electrician, George Johnson, borrowed a window-display turntable, driven by a little one-twentieth horsepower *(Continued on page 1100)*

For Babies Who Have Outgrown Strained Foods—Heinz Offers 12 Junior Foods!

Carefully Prepared To Meet The Needs Of Toddlers, These Highly Nutritive Foods Are Tempting And Delicious!

Now the House of Heinz helps you solve your menu problem when baby is past the strained food age! For you can serve Heinz Junior Foods—*highly nutritive food combinations* carefully designed to meet the requirements of active youngsters! These new dishes are dependably pure and delectable—because they're made with the same homelike patience and scientific skill that characterize the preparation of all the 57 Varieties!

Protect your toddler's grand start by switching to Heinz Junior Foods. You'll save time, work and worry by giving baby these hearty dishes specially prepared *for him!*

HEINZ
Junior Foods

CHOOSE FROM 12 DELICIOUS KINDS

CREAMED TOMATO AND RICE. Choice vegetables, whey powder and soy bean flour are added to give better nutritive balance—*richer flavor.*

CREAMED DICED POTATOES. Milk, cream, butter and brewers yeast give this food higher energy and nutritional value.

CREAMED GREEN VEGETABLES solves the problem of how to make children like greens! It's a luscious combination of kale, green lettuce, green asparagus, peas, milk and cream.

CREAMED DICED VEGETABLES. Choice vegetables, milk and rice in a diced or chopped form. Addition of a yeast concentrate improves the vitamin B and G content.

LAMB AND LIVER STEW contains lamb meat and liver and chicken liver—making this product of value for anemia prevention and correction. Choice vegetables improve the vitamin content and flavor.

CHICKEN FARINA VEGETABLE PORRIDGE is made from the meat and broth of selected chickens, tasty vegetables, durum farina, wheat germ and milk. Here's a savory way to get more cereal in baby's diet! He'll really enjoy this dish!

CHOPPED CARROTS. Sweet, mature carrots are chopped coarse enough to require some chewing. The rich orange color indicates its high content of pro-vitamin A.

CHOPPED MIXED VEGETABLES. This is a nutritious blend of several vegetables, highly favored for the diet of children. It contains potatoes, sweet potatoes, carrots, celery, green beans and onions.

CHOPPED SPINACH. The dark green curly variety of spinach is cut into particles of such size that only a moderate amount of chewing is required.

PINEAPPLE RICE PUDDING is prepared from fancy Hawaiian pineapple in a wholesome custard with rice. Its high carbohydrate content makes it an energy-giving food—eggs and milk increase its nutritive value.

PRUNE PUDDING. Choice prunes and farina are cooked with milk and eggs, producing a dish that is less laxative than plain prunes and has an excellent nutritive balance.

APPLE, FIG AND DATE DESSERT. Ripe, full-flavored apples are blended with the small-seeded variety of white figs and select dates. Lemon juice is added to enhance these rich flavors with a touch of tartness.

A Prize that all America shares!

EACH YEAR SINCE 1929, the *City Health Conservation Contest* has been conducted by the Chamber of Commerce of the United States, in co-operation with the American Public Health Association.

Impressive placques or certificates are awarded annually to the contest cities which have done the most to improve their own health conditions and to reduce sickness and death rates.

But medals and publicity seem trivial, indeed, in comparison with this important fact . . .

▶ The American Public Health Association estimates that health-conservation activities under the stimulus of this contest, in cities in 43 states and in Hawaii and Alaska, are saving 5,000 lives each year!

That is a reward worth striving for . . . a reward which is shared by all America!

▶ Thousands of children have been protected against the ravages of diphtheria and other diseases. Water supplies have been further safeguarded. Problems of adequate sewage disposal have been solved. New tuberculosis clinics have been installed.

Safeguards on milk and other food supplies have been tightened up. More extensive and continuous education of the population in health matters has been made possible and the co-operation of physicians and dentists has been enlisted in furnishing services to all who need them.

It must be more than coincidence that 47 cities in last year's contest showed death rates from tuberculosis of less than 40 per 100,000. In 1929, when the contest was inaugurated, the death rate for the country as a whole was 76 per 100,000.

▶ Also, in seven of last year's contest cities, no mothers died in childbirth; in five, fewer than one mother died per 1,000 births, and in fifty, only four mothers died per 1,000 births.

These are only a few of many examples that show how health conditions are being improved and death rates lowered in contest cities.

Over 35,000,000 Americans live in cities which competed in last year's contest. Cities with a total population of over 48,000,000 are eligible this coming year—and this number can be increased as additional cities accommodate themselves to the contest rules.

▶ All over America, the City Health Conservation Contest is harnessing the enthusiasm, the intelligence, and the efficiency of local businessmen. They have embraced the opportunity to co-operate with their local health authorities and to contribute to the welfare of their communities.

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1 MADISON AVENUE, NEW YORK, N. Y.

THE MIRACLE OF PLASMA

(Continued from page 1073)

which in turn is a rubber stopper. Through this stopper a hollow needle can be plunged, so that a transfusion can be made directly from the bottle to the patient at the scene of his injury.

These bottles are then released to the Red Cross for shipment to England on the fastest steamers and by clipper plane.

Every English field hospital is—or will be—supplied with plasma for direct and rapid transfusion on the battlefield, an operation never before possible. Thus life will be preserved in shattered bodies long enough for their safe removal to hospitals.

Some plasma is being prepared in England, but the bulk of it must come from us. For in Britain's crowded hospitals there is too little time or space to devote to the careful, tedious process.

Judging from the impressive response of American citizens to this need, Britain will not hereafter lack for blood, nor will our own soldiers be without this inestimable protection, and, most heartening of all, when the present great catastrophe shall have passed, humanity will benefit for all time by the miracle of plasma.

ROCKY MOUNTAIN SPOTTED FEVER

A case of Rocky Mountain spotted fever in eastern Pennsylvania, unusual both because of the time of its onset, December, and because of the occurrence of a relapse three weeks after the subsidence of all symptoms, is reported by Milton H. Cohen, York, Pa., in *The Journal* of the American Medical Association.

In the Atlantic states cases of the fever have been reported from May through October, that is, during the season of the ticks whose bites are responsible for the disease. The occurrence of a case in December is decidedly unusual. The name of the disease is misleading, as it is by no means limited to the Rocky Mountain region.

The occurrence of a relapse three weeks after all the symptoms had subsided seems to be the first to be reported in medical literature, the author says.

The W P A SCHOOL LUNCH

(Continued from page 1076)

that the child's anemia was due to malnutrition. In September 1938 the school this young girl attended began serving WPA lunches. She was given the regular meal prepared on the WPA project, and a special diet of milk, eggs and oranges, contributed by teachers and an interested citizen. In three months she had gained 10 pounds, and her eyesight had so much improved that she was able to study with other children. Continuing the regular school lunch, she is now a healthy, normal child.

In a West Virginia mining town, where the mines have been abandoned and there is no work, and little food of any sort, lunches are served seven days a week. Gardens and food preserving projects contribute foodstuffs, and no child of school age goes hungry all day. This project operates in 45 West Virginia counties. It is sponsored by the State Board of Education.

Out in the Puget Sound country, not far from Seattle, more than a thousand high school children of Kirkland, Washington, will have free, hot noonday meals this year for the first time, thanks to the hearty cooperation of the PTA with the WPA school lunch project. Using surplus commodities and other contributed fruits and vegetables, the PTA has already canned 1,200 gallons of foodstuffs, and plans to can an additional 1,500 gallons for use on this project before the school year is over.

The Oklahoma Department of Health, the Oklahoma Department of Education, and Agricultural and Mining State College, jointly sponsor the Oklahoma WPA school lunch program, which is designed to provide adequate food for every malnourished child in the public schools of the state. Staff technicians attached to these sponsoring agencies give expert supervision to the project. Agricultural and Mining College contributes the services of its state demonstration agent, its extension food and nutrition specialist, and the head of its department of household science and institutional management. The State Health Department supplies a nutritionist, and the Department of Public Instruction provides three State supervisors, one each for home economics, adult education, and rural schools. All these experts are members of the project's State Advisory Board. The five WPA district supervisors on the board are trained home economists. They are assisted by five registered nurses, one for each district.

Supervisors have organized the health education phase of the work, coordinating project activities with those of adult education and home economics teachers from State Education, and staff doctors and nurses from the Oklahoma State Health Department. A unified, constructive health program is the result. Not only are malnourished children assured the proper food, but also frequent check-ups on their health and general physical development determine the nature of any treatment or corrective measures that may be necessary.

When details for this now active program were being worked out in October of last year, the State Welfare Board estimated that 124,000 of Oklahoma's 750,000 school children would require feeding. In April 1940, WPA workers on this project numbered 2,911. The program combines with the school lunch the WPA garden and canning projects, and provides for a minimum of 600 acres to be devoted to food production.

The California State Department of Education sponsors a school lunch project for Northern California which makes possible a nourishing meal every school day for fifteen thousand needy children. Wherever the project is in operation, local school boards act as co-sponsors.

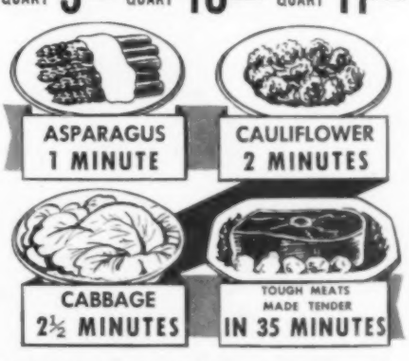
Incidents illustrative of the great need this project fills, not only in California, but also all over the United States are numerous. Habitually hungry children are apt to be secretive, as were the five pale, unkempt children, all under 10, who always took their lunch pail to a secluded corner and virtually hid themselves to eat. Investigation, which seemed necessary, revealed that they had only bread for their lunch. Their mother was dead, but the family was not eligible for

(Continued on page 1096)

Give her the New
NATIONAL
PRESTO
COOKER

Here's the gift she really wants—the PRESTO cooker that will save her 300 "kitchen hours" every year. The PRESTO world's fastest way to cook better meals, save time, fuel and vital food values. Home economists and thousands of users (and their families) all agree that the PRESTO preserves tempting garden-fresh flavors and colors of vegetables, makes the toughest meats savory and tender in minutes instead of hours. Remember there's only one PRESTO—the only cooker of its kind in all the world.

TWO QUART $9.50 THREE QUART $10.50 FOUR QUART $11.50



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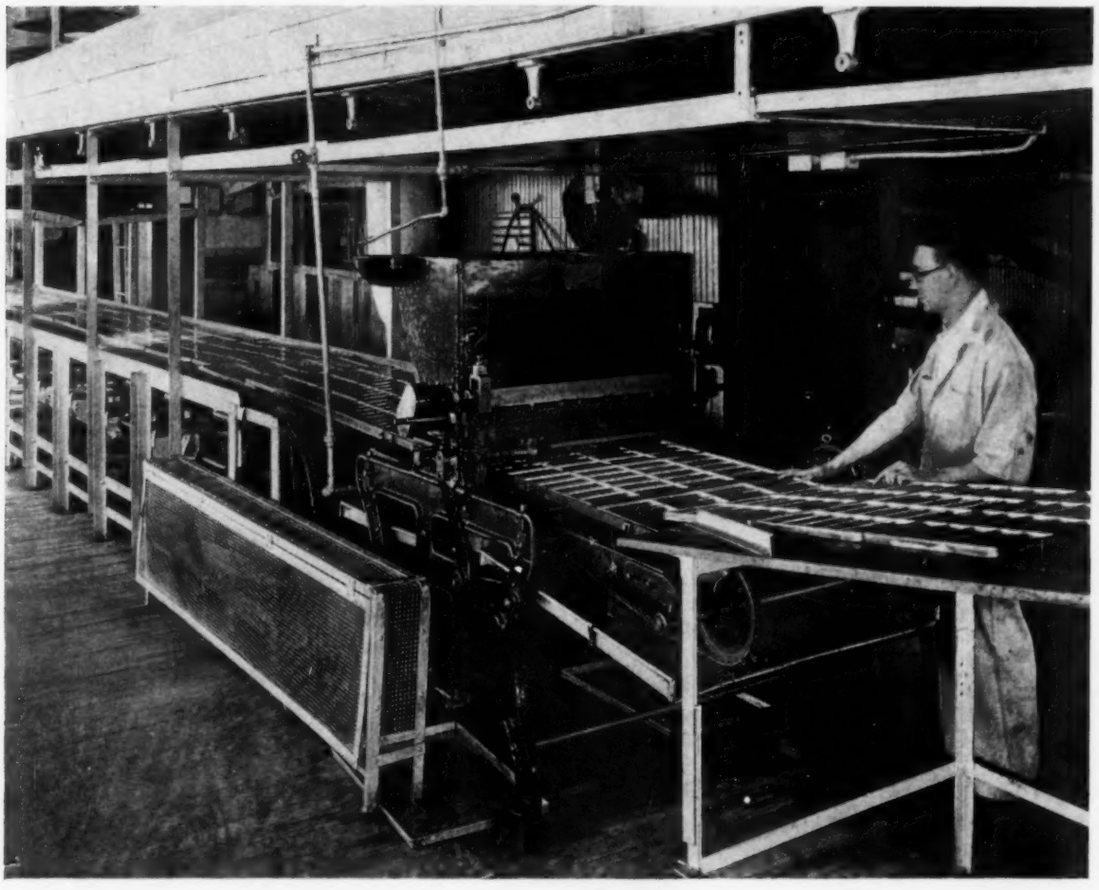


After the chocolate is poured into molds, a conveyor belt carries the forms over a vibrating mechanism to insure uniform consistency.

Chocolate and Chocolate Products

EVER SINCE the last emperor of the Incas, Atahualpa, proffered Pizarro and his army a beverage made of chocolate by way of appeasement, chocolate and foods flavored with chocolate have been favored the world around. Chocolate is said to be one of the America's most treasured contributions to the world's food basket.

Chocolate is derived from the seeds of Theobroma cacao, a tree native to Brazil and Central America. Cocoa is chocolate with the fat removed. After the hulls are removed from the cacao beans, the beans are crushed and freed from the bean germ. The resulting coarsely crushed product is known as cocoa nibs. These nibs are ground, forming a thin paste, known to the trade as chocolate liquor. When the paste cools it hardens and is then known as plain chocolate or bitter chocolate. Sweet chocolate is chocolate mixed with sugar, cacao butter and vanilla. Milk chocolate is the product obtained by grinding chocolate with sugar, whole milk and cacao butter. The chief difference between cocoa and chocolate is in the proportion of fat, although starch, sugar or other substances may be added to either.

There are federal standards and definitions for cacao beans, cacao nibs, cacao butter, chocolate, sweet chocolate, milk chocolate, cocoa and Dutch-process chocolate.

Chocolate flavored beverage bases are compounded of a variety of ingredients, including chocolate, cocoa, maltose, dextrose, skimmed milk, cane sugar, malt extract, powdered whole eggs, tapioca flour, dried bananas, vanilla extract and vanillin. Approximately 1 ounce of a chocolate flavored beverage base is required to make an 8 ounce serving of beverage. Obviously the nutritional value of the beverage base depends on the kinds and amounts of ingredients of which it is compounded. Beverage bases containing malt or skimmed milk may have a higher vitamin potency, but specific vitamin claims are not recognized by the Council on Foods unless satisfactory records of vitamin assays are provided.

The caffeine and theobromine content of all beverage bases must be furnished, together with the formula and analysis, before the American Medical Association's Council on Foods considers acceptance. Beverage bases with a relatively low theobromine and caffeine content may be advertised for use in the preparation of beverages for children. At present there are no federal definitions and standards for chocolate flavored bases.

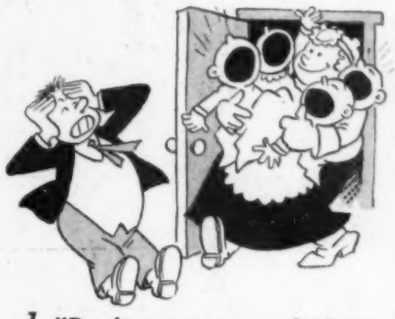
Accepted beverage bases are fabricated for home, fountain and dairy use. Acceptance of chocolate flavored beverage bases used exclusively in the dairy trade for the manufacture of chocolate flavored drinks is not granted until the resulting beverages are acceptable to the Council.

Chocolate confections such as milk chocolate, milk chocolate with almonds or peanuts and chocolate coated confections are essentially "concentrated sweets." The accompanying table shows that these products furnish from 150 to 165 calories per ounce. When one considers that an ounce of leafy vegetables provides about 10 calories, an ounce of a "starchy" vegetable, like white potato, about 25 calories and an ounce of lean beef about 50 calories, the phrase concentrated sweets takes on meaning. Such concentrated sweets impair appetite for other foods; it is for this reason that sweet chocolate is included in the ration kit of soldiers in active service, and similarly the reason that concentrated sweets should be used sparingly, if at all, in the diet. A well-balanced diet, including milk, eggs, fruits, vegetables, meats and whole grains is one of the prime requisites for growth and health. Sweets contribute none of the structural components required for good nutrition and lessen the appetite for foods which do provide the necessary structural components. There is some evidence that excessive amounts of sweets in the diet promote dental caries. For all of these reasons sweets should be used sparingly in the diet, especially of children, and should be avoided by all persons highly susceptible to dental caries.

Special recommendations for children are not approved for foods consisting largely of chocolate or cocoa which contain considerable quantities of theobromine and caffeine; no objection will be taken, however, to such recommendations in the case of foods that are merely flavored with chocolate or cocoa and which, in quantities likely to be consumed, are free from any probable effects due to theobromine or caffeine, provided the recommendations are permissible for the basic foods themselves.

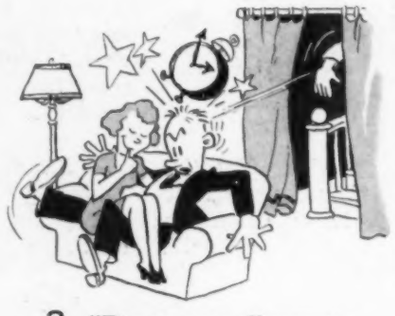
The chocolate, cocoa and chocolate beverage bases that stand accepted by the Council are listed. The ingredients and trade name of each product are given.

FAMOUS WORDS OF ADVICE—



1. "Don't count your chickens before they're hatched."

2. "You can lead a horse to water, but you can't make him drink."



3. "Time cures all manner of ills."

4. "DRINK POSTUM, INSTEAD!"

SUPPOSE YOUR DOCTOR told you to stop drinking coffee!

You might wonder how you could possibly enjoy your meals without a hot drink. Well—don't let this worry you.

You can have a cheering, satisfying hot drink merely by switching to Postum.

That's the reason many doctors don't just say, "No coffee," but add the words, "Drink Postum, instead."

For Postum is a hot, full-bodied, satisfying drink—a favorite in *millions* of American homes. Postum is, in fact, the perfect mealtime drink—perfect because it has no caffein or stimulant of any kind. It is simply whole wheat and bran, roasted and slightly sweetened.

Easy to fix—
Very economical!

Postum is delicious and easy to make. And economical (about ½¢ a cup). Postum is a product of General Foods.

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ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

ASK YOUR DOCTOR ABOUT POSTUM

For EVERY MILK PURPOSE

● Particularly for infant feeding, Van Camp's Evaporated Milk is widely recommended by physicians because it is uniform in composition and readily digestible. Used in cooking, it adds a rich, creamy flavor to many dishes. Contains double the amounts of fat, protein, minerals and milk sugar in cow's milk. Sterilized and homogenized.

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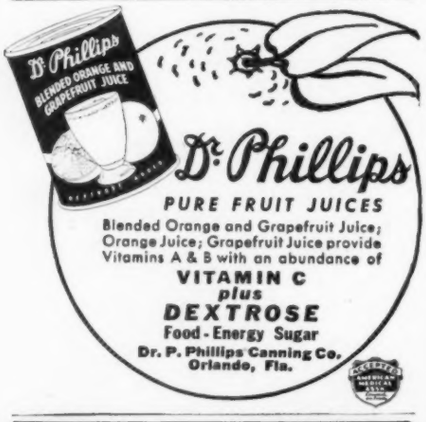

THIS TOMATO JUICE IS NEVER THIN OR WATERY
High retention of nutritional values because made by patented process. The Sun-Rayed Co., Frankfort, Indiana.
KEMP'S SUN-RAYED

DO YOU LIKE GOOD CREAM CHEESE?
HAVE YOUR DEALER SHOW YOU THE NAME
Breakstone's
WHEN HE CUTS YOUR ORDER

DURKEE'S DOUBLE FLAVOR VEGETABLE MARGARINE

● Made by a new process that whips the goodness of the pure, pasteurized fat-free milk and wholesome vegetable oils right into the product.

DURKEE FAMOUS FOODS, Chicago, Ill., Norwalk, O.

America's Favorites

PROXIMATE COMPOSITION CHOCOLATE PRODUCTS

(Analyses Submitted by Manufacturer)

Product	Moisture, %	Ash, %	Fat, %	Protein, %	Crude Fiber, %	Carbohydrate, %	Caffeine and Theobromine, %	Calories per Ounce, %
Unsweetened chocolate in cake form	1.1	2.8	55.5	11.4	2.7	25.2	1.3	185
Cocoa *	3.2	4.8	23.9	21.9	4.5	39.5	2.25	131
Milk chocolate confection	0.6	1.7	33.6	8.4	0.4	55.1	0.17	159
Milk chocolate confection with almonds	0.6	1.9	39.3	10.1	0.7	47.3	0.14	165
Chocolate coated confection with peanuts	3.1	1.2	31.7	11.4	0.8	51.8	†	153
Chocolate flavored beverage base	21.5	2.0	3.1	2.2	0.2	70.4	0.12	94
Chocolate flavored beverage containing skimmed milk	81.8	0.8	1.3	3.4	0.02	12.7	0.011	22 ‡

* Ground dried partially defatted chocolate liquor.
† Not determined.
‡ One pint of chocolate flavored beverage containing skimmed milk provides 362 calories.

ACCEPTED CHOCOLATE PRODUCTS

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

The following brands of chocolate, cocoa and chocolate flavored beverage bases have been accepted by the Council on Foods of the American Medical Association and are described in the book "Accepted Foods and Their Nutritional Significance" published by the Association.

Bowey's Hot Chocolate Powder, a beverage base containing powdered chocolate liquor, cane sugar and skimmed milk flavored with vanilla extract.

Bradway Chocolate Flavored Syrup, a liquid beverage base containing a cooked, homogenized mixture of cane sugar, water, tapioca, flour, cocoa, chocolate, sodium chloride, artificial flavoring and tartaric acid.

Chocalose Chocolate Flavored Powder, a powdered beverage base containing malt extract, chocolate maltose, dextrose, bone calcium, phosphate and iron and ammonium citrates.

Hershey's Baking and Drinking Chocolate, Unsweetened, ground cacao nibs, or chocolate liquor, in cake form.

Hershey's Breakfast Cocoa, powdered, dried, partially defatted chocolate liquor.

Hershey's Choclatier Chocolate Flavored Powder, a powdered beverage base containing chocolate liquor, roasted cacao beans, dried skimmed milk and cane sugar.

Hershey's Chocolate Flavored Syrup, a liquid beverage base containing cane sugar, water, cocoa and invert sugar (prepared by hydrolyzing sucrose with U. S. P. hydrochloric acid and subsequently neutralizing the acid with U. S. P. sodium carbonate).

Kingco Chocolate Flavored Powder, a powdered beverage base containing sweetened malted milk, skimmed milk, Dutch cocoa and whole eggs.

Rockwood's Chocolate Flavored Syrup, a beverage base containing sucrose, syrup, water, cocoa and sodium bicarbonate (trace), flavored with vanillin and coumarin.

Rockwood's Cocoa, Flavored, powdered, dried and defatted "chocolate liquor," flavored with vanillin. It contains less fat than standard cocoa.

Rockwood's Lofat Cocoa, powdered cocoa containing not more than 1 per cent cocoa butter, for special low fat diets.

Vee Vo Chocolate Flavored Powder, a beverage base containing sucrose, breakfast cocoa, malted milk, dried egg yolk (1 per cent), whole milk powder (0.5 per cent) dried malt (0.5 per cent) and sodium chloride, flavored with vanillin.

Vitavose Chocolate Flavored Powder, a beverage base containing sucrose, malted wheat germ extract (30 per cent; extract of malted wheat germ and U. S. P. malt), cocoa and skimmed milk, flavored with vanilla.

Warfield Premier Baking Chocolate, Unsweetened, ground cacao nibs, or chocolate liquor, in cake form.

Whitman's Chocolate Flavored Syrup, a liquid beverage base containing sucrose, cocoa, invert sugar and sodium chloride, flavored with vanillin.

Meat...

How Much?... And How Often?

HOW every face around the table lights up when father begins to carve! Few foods are eaten with so much relish as a savory pork roast, a juicy steak, a tender pot roast! Meat is the mainstay of the meal, the dish around which the meal revolves. Yet frequently you hear the questions "I wonder if I am eating too much meat?" "I wonder if I am giving the children too much meat?"

Nutritional science has learned much about meat in the last 10 years. The old American saying "Meat is good and good for you" is truer today than ever; truer, because we have learned the reasons why. Meat, even the thriftiest cut of it, is rich in complete protein, in certain valuable minerals, in some important vitamins.

The protein of meat provides all of the 10 essential amino acids needed to keep the body going, to repair the wear and tear of everyday living. Meat is a good source of iron and copper, so important in the maintenance of good red blood. It is rich in vitamin B_1, and also is a good source of riboflavin (vitamin G or B_2) and the pellagra-preventive vitamin. All these are food essentials, needed by the slender young stenographer as well as by the man who does heavy labor, by older people as well as by the man in his prime, and especially by children to assure adequate growth.

Twice a day is not too often to eat meat. How much? Since so few people in their usual diet eat an adequate amount of protein foods, from 4 to 6 ounces of meat twice a day is not too much for a grown-up, and half that much for a child of ten or twelve years. And meat is so easily digested that there are very few conditions when your physician will advise against it.

Truly, meat is good and good for you. And best of all, there are so many ways in which a clever home maker can serve even the thriftiest cuts that few if any American homes need ever be without the nutritional advantages of meat.

The Seal of Acceptance denotes that the statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute

CHICAGO

Much Taboo About Nothing

By CELESTE TURNER WRIGHT

FOR TWENTY YEARS I was a vegetarian, simply because I willed it so. The ordeal began when I, as a child of 8, laid my hand on a pocket New Testament and with gusto took oath that never again would I eat any food which had had life. And one year ago, a woman chastened by dietetic experience, I began—almost as solemnly—to eat my first tuna sandwich. Today the interlude between those two scenes appears like a fading nightmare.

Why did I take that vow at the age of 8? My early taste for animal books lay behind it. I had come to love Uncle Billy Possum and Uncle Wiggly Longears, heroes just as human as the Five Little Peppers or the four Little Women. And from them, though the authors were discreetly silent about barnyard folk, it was natural to infer the humanity of Rosie, my grandfather's Jersey cow.

One evening, over a heartbreaking folio from the Society for the Prevention of Cruelty to Animals, two playmates and I formed a Humane Association: We would not shoot birds nor disturb their eggs; we would discourage the cutting of puppies' ears, the drowning of kittens; we would feed lump sugar to horses. Hastily we sketched plans for a national organization with ourselves as charter members. Neither playmate, however, would go so far as I did; both gaped in stupefied admiration when I took an oath against meat. For months after our Humane Society had been forgotten, along with our stamp-collecting and our basket-weaving, they would ask me now and then, "Are you still a vegetarian?" And if I had not moved out of the neighborhood, they would have heard my "Yes" for twenty years.

As long as Mother prepared my meals I could dine with a light heart, for she never played me false. Diligently she scrutinized labels and advertisements, banished the innocent-appearing canned soup that contained meatstock, the tasty sandwich spread that harbored a suspicion of tuna. But whenever I sallied into other dining-rooms, vigilance was the price of purity; always I had to play the detective. Had a vegetable shortening been used for frying and for pastry-making? Had the potatoes been browned away from the roast? What was really under the lid of the casserole? There was also a worry about getting enough protein: eggs, milk, and cheese—my principal supply—were not always set before me.

Thus I lost the pleasure of dining out. Supper at the minister's racked my nerves like a meal with Lucrezia Borgia. I was in the same unhappy class as my Catholic friends on Friday, my Jewish friends in the absence of kosher food, my allergic friends in the presence of a hostile protein, my reducing friends when confronted with starch—except that for me every day was Friday (a fishless Friday at that), no meat was kosher, nearly all proteins were hostile, and I couldn't eat even a chop that Jack Sprat would relish.

Alas, the monotony of the dishes that finally passed muster! Not at home, of course: Mother, bless her, ingeniously contrived purely vegetable soups, delicious baked beans without pork, hot nut roast so savory that even meat-eaters clamored for the recipe. But in restaurants, *table d'hôte* meant starvation—omitting most of the courses; and *à la carte* meant the same old standbys—the (canned) vegetable plate with diced carrots and beets, abundant mashed potatoes, and, atop the whole, a pale poached egg. That egg, in particular, became a grievance; and I came to shudder at the word omelet. Or I might choose the familiar cheese sandwich, either dry and lifeless, or hot and rubbery; the "combination" or fruit salad, so comfortless in winter.

Banquets were worst of all—that ghastly revelry of cannibals while I (1) skipped the soup; (2) ate the tomato sauce around the shrimps; (3) slipped the entree to the plate of a hungry friend who sat, harpy-like, beside me to double his ration of squab or duckling; (4) ate the salad—or the lettuce around the lobster; (5) consumed French rolls

and ice water and hoped that the servings of dessert would be generous. Many a time I have risen empty from such a board and hurried home to forage in the refrigerator. Toward the last my optimism was so battered that I seldom went to a banquet at all without first fortifying myself with one of Mother's good dinners.

I could have endured the food, however, if the people had been tolerant. Some were simply rude: they refused to believe that I wasn't pining for meat, that the sizzle of steak didn't make my mouth water. They hinted that I picked chicken bones on the sly, as a reducing lady eats chocolate cake. Or, glimpsing my breaded eggplant, they mistook it for meat and proclaimed my hypocrisy abroad. Or they were eager to share—they begged me to make exceptions "just this once" and sample their Thanksgiving turkey with giblet gravy. Or they burlesqued my arguments: an egg, they hooted, is really a baby chicken; and one murders the poor little cabbage (ha ha) by eating it boiled.

Hostesses were the delicate problem. What they thought of vegetarians I knew from their opinion of Frank, a large, strong fellow, physically a walking advertisement for our diet, who made the cult obnoxious by challenging every dish. Not only did he refuse meat in all its forms, but he tabooed even cheese because of the rennet; jello and ice cream because of the gelatin. Naturally Frank was almost never invited out.

To shun his fate I was often silent about my peculiarity. At dinners I let my meat portion lie and busied my hands with bread. Except in a crowd, this makeshift seldom succeeded. The hostess was eagle-eyed and concerned. I might have foreseen her reaction: waitresses in the better restaurants, when I left my steak untouched, always felt the insult to the house and inquired whether the meat were burned. It generally ended with my making a clean breast of things.

If, on the next invitation, I forewarned the hostess, the consequences were equally unhappy. A few ladies, for my own good, gave me meat in a disguised form, expressing wonder when they learned that even a shred of it was taboo. Or they were only too considerate, too solicitous: they cooked special dishes and proclaimed me a public

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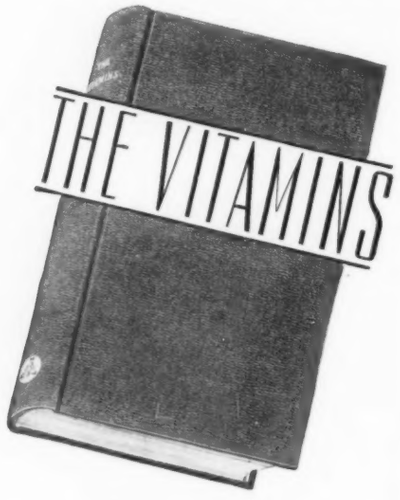

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nuisance by serving me with a flourish. In short, it was only with bosom friends that I liked to dine.

All these adventures did me psychologic harm. A born introvert, I found that my diet doubled my queerness. Whereas almost every social affair is an excuse for a snack, I couldn't enjoy the most ordinary wiener roast or barbecue; every one stared while I lunched cheerfully on a dry bun and some potato salad. Motoring, I couldn't join the others in a hamburger or a shore dinner. Always I was apart—an outsider. Sensitive about being "different," I gradually closed my mind, refused to discuss my diet, sank ever deeper in a mental rut.

It was therefore a herculean feat when I actually "changed back." Nibbling an anchovy-paste sandwich at a tea in the fall of the twentieth year was like biting into one's first canned rattlesnake. It was the result of several years' undermining.

Marriage was a factor, though I married a tolerant man who is fond of lettuce. Once, in the ardor of courtship, I made him a ham sandwich, forcing myself to trim the fat off the repulsive pink shavings. After our marriage he fried his own steaks and chops; but I did the marketing, and the idea of meat became less and less loathsome.

About this time, too, I developed an interest in foreign restaurants. I wanted to try Swedish *smörgasbord;* a Russian dinner. To my disappointment there was almost no national dish I could sample. It was humiliating, in a Chinese place, to order an American-cheese sandwich; in an Italian dining-room to pay $1.03 for almost no food, while my friends exulted over the abundance before them.

Then came my illness—a real turning-point. For twenty years I had thrived; but now congestion of the lungs resulted from overwork. For the first time I had to spend more than a day in bed. The doctor, building me up, prescribed abundant protein. Admittedly, I could get it from eggs and dairy products; but he asked point-blank just why I shuddered when he recommended steak. Although I shrank at once into my shell, he had started me thinking; and gradually, during the next few months, my attitude changed. Analyzing, I saw that my practice was inconsistent. I had always worn leather shoes from necessity, fur-trimmed coats out of vanity; and I had absolved myself from sin if I unknowingly ate something containing a trace of meat.

From these weaknesses it was an easy step to stop asking questions. One day at a reception, baffled by a plate of dangerous-looking sandwiches, I deliberately swallowed one that tasted fishy. In a Basque restaurant I ate spaghetti that was faintly speckled with beef. And at last I began to order anything I pleased, joking with my friends as I wallowed knee-deep in sin.

There were unexpected difficulties. In the early stages the taste of meat was disappointing. By ill luck, one of my early victims was an omelet containing chicken livers; it almost discouraged me. The use of the knife, too, was difficult at first: Sawing awkwardly, like a child learning his first table-manners, I sometimes found the entree in my lap.

And society, oddly enough, was organized to keep me in a rut: Not only did Frank and the other vegetarians reproach me, but my meat-consuming acquaintances were annoyingly amused. Necks were stretched to see me eating a T-bone. And some friendly souls even warned me: "Do you know, Madam, that this is ox-tail soup?"

Today, after my painful adjustment, the situation is becoming pleasant. My diet has now, for instance, so much less bulk that I am not drowsy after lunch; I can forget that photograph of the African pigmy, a vegetarian with distended stomach. And I am recapturing long-lost memories: Venison and codfish take me back to my New England childhood; and it's fun to say, "This is my first lake-trout in twenty years."

I triumph over the epicures who used to laugh while I starved at banquets; a menu commonplace to them, is for me full of exploration and discovery. Some of them pretend envy; they wish they had saved a vice to warm their bones with now.

And I enjoy my new mental freedom. Having broken a chain of outgrown habits, I can cope with other prejudices, other fetishes. I feel flexible, ready to adjust myself to life. So when someone prates of my inconsistency, I merely smile and reply, "Sorry, old dear, but my principles are completely gone."

A THIEF IN THE NIGHT

(**Continued from page 1069**)

misty vision and haloes or rainbows around light sources. They obtained glasses and changed them frequently over a period of years, but the important symptoms were ignored or their significance not understood because the central vision was still good. One of these patients told the optometrist (one who is qualified to fit glasses but is not a doctor of medicine trained to treat diseases of the eye) who was fitting him with glasses that he had to use a flashlight when he came home at night, while other persons apparently walked along without difficulty. In such cases the optometrist, optician or druggist can best aid the sufferer by referring him to an eye physician (oculist) for proper advice, instead of attempting a diagnosis or treatment.

This diminished ability to adapt vision to varying degrees of darkness may be an early symptom of glaucoma. Another patient had to wait an unusual length of time before she could find a seat in a moving picture theater. She believed that her condition was caused by a vitamin A deficiency and had tried cod and halibut liver oils and other vitamin pills, but without result.

In well-advanced glaucoma, with atrophy or death of the optic nerve and a definite contraction of the field of vision (loss of vision to the sides), patients often feel as if they are looking through a tube. Tubular vision may be found in certain hysterical or highly nervous patients, but in these cases the other symptoms of glaucoma are not present. A trained eye physician can detect whether or not this condition is due to nervous strain of the glaucoma patient or whether it is a sign of glaucoma.

It is important that a knowledge of this disease, its early symptoms, detection and treatment be as widespread as information concerning cancer, for only then can the early diagnosis of glaucoma be assured. There is an unfounded fear that the mere knowledge of this disease will induce it in nervous persons. But a more careful analysis indicates clearly that there is no sound basis for any such fear. Symptoms must not be ignored and, if they exist or are suspected, a timely examination should be made by a qualified eye physician. With his aid, many of the cases which are now unrecognized until the late, incurable stages will be discovered in time for adequate treatment.

Glaucoma often lends itself to the purposes of the novelist as may be seen in Stewart Edward White's "The Leopard Woman." In this story a British explorer, suffering from glaucoma, carried a drug which would control his condition. Another expedition, seeking to stop him from reaching the African ivory center, sent the Leopard Woman to halt his progress. She, having learned that the Englishman had glaucoma, decided to destroy his sight with belladonna or atropine. (These drugs promptly precipitate glaucoma in susceptible persons.) The Leopard Woman succeeded, but he, blinded, nevertheless pressed on to the village he had long sought. There he was able to make the chief of the tribe come to him and, with closed eyes, began the negotiations which ended when he received the coveted concessions.

That this disease has long afflicted the human race is indicated not only in early writings but also in old engravings. Massaging the eye was often indicated and leads to the conclusion that this was thought to be a useful procedure. This method is still used in modern glaucoma therapy. Tobias was blinded suddenly, thus suggesting glaucoma as a possible cause. The fact that fish liver or gall was used to effect the miraculous cure in his case is interesting because it shows that even then there existed some crude, empirical knowledge of the value of fish liver (a storehouse of vitamin A) in afflictions caused by vitamin A deficiencies. Milton, the poet, was also believed to have been blinded by glaucoma.

Effective treatment of glaucoma is an individual problem and must be guided by the experienced eye physician. Early diagnosis is essential and proper treatment in the

(Continued on page 1119)

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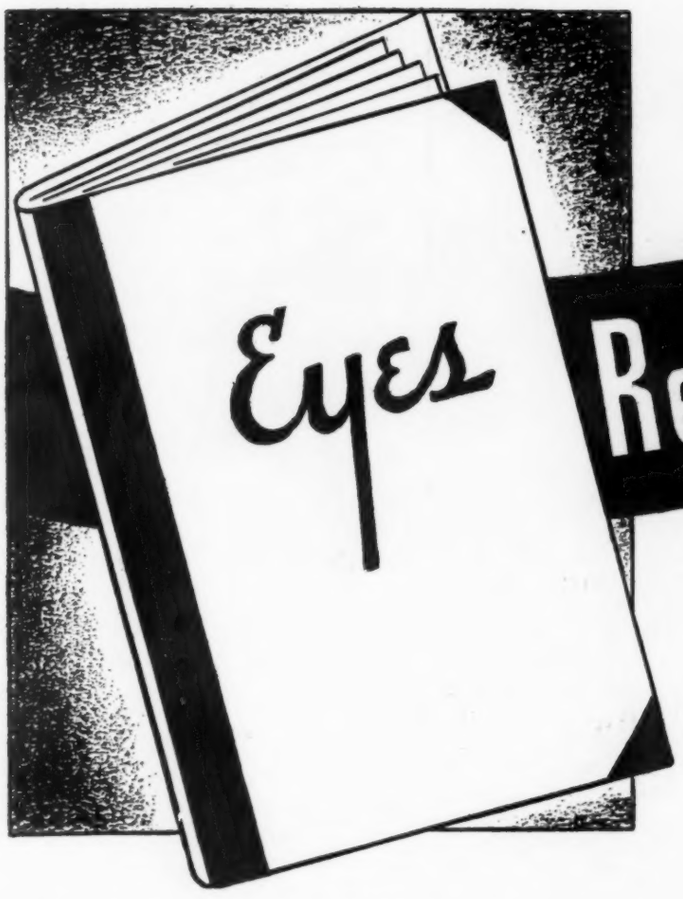

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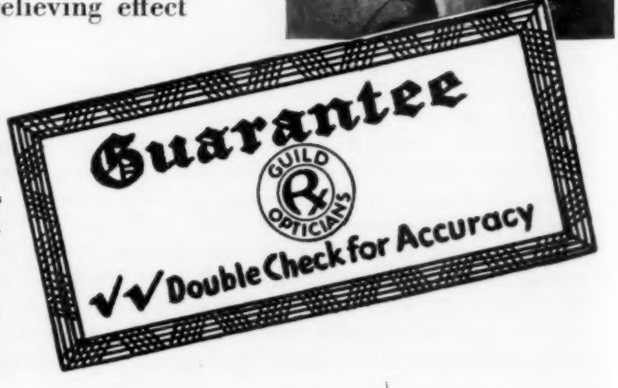

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QUESTIONS AND *Answers*

Turbinate Bones

To the Editor:—Does the term "enlarged turbinates" actually mean that the spongy, nasal bones are too large for the nasal cavity, or that the tissue over these bones is enlarged? Is there any relationship between a somewhat languid circulation and enlarged turbinates? What is the physiological function of the turbinates?

Granting that electric cautery gives relief for a limited time only, is there anything which can be done to rid one of this trouble? Are the superior, middle, and inferior turbinated bones all equally liable to enlargement?

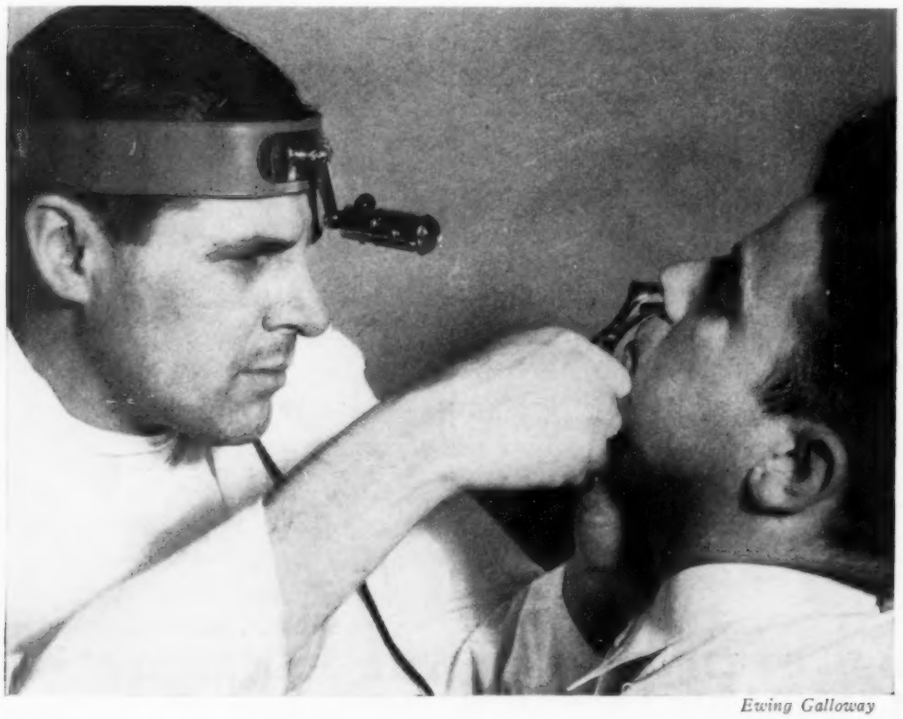
L. R., Wisconsin.

Answer.—Enlargement of the turbinates may mean (*a*) enlargement of the soft tissue covering the turbinal bone, (*b*) enlargement of the bony structure itself, or (*c*) a combination of both.

A languid or "sluggish" circulation will cause engorgement of the cavernous spaces of the turbinal mucous membrane with resultant temporary swelling. Astringent solutions will constrict such turbinates. Allergic conditions in the nose often cause enlargement of the turbinates, and if the allergy is not controlled or if inflammatory states take place at the same time, or varying combinations of these conditions are permitted to continue, permanent enlargement of these structures will take place so that they will not constrict when astringent solutions are applied. Structural faults in the nose such as irregular and deviated septa, with or without ridges or spurs will crowd one nasal chamber and leave the other wider. The turbinal in the wider chamber will often enlarge to compensate for the crowded one—it will have to function not only for itself but also take up part of the work of the opposite side.

The turbinates expand and contract according to environmental conditions as well as the state of well being of the individual and freedom of sensitivity of the blood vessels in the soft tissue to any and all allergens. They warm and moisten the inspired air preparing it for functional use in the lungs. The air is warmed to body temperature and moistened almost to saturation during inspiration. Foreign particles are filtered out at the same time. There are several other functions described but are only of academic interest.

Electric cautery and some chemical agents are of definite value in reducing certain types of enlarged turbinates, especially the congested variety. Trimming of excessive tissue over the turbinate with a scissors or knife, or amputation of part of the middle turbinate if the bone of the latter structure is excessively hypertrophied are sound and efficient procedures. Each case must be individualized and the causes of turbinal enlargements ascertained before any treatment is



Ewing Galloway

A "sluggish" circulation may often cause engorgement of the cavernous portions of the turbinal membrane.

carried out. The ultimate cure will depend upon the elimination of the cause.

The superior, middle and inferior turbinates are all liable to enlargement; the middle and inferior turbinates are most often involved, however.

Neck Exercises

To the Editor:—Do exercises for the neck and throat, frequently advocated in "beauty" articles, prevent a double chin?

D. B., Colorado.

Answer.—If a person grossly overeats so that he accumulates masses of fat, exercise cannot keep up with the process of fat storage. Furthermore, there is no evidence that the amount of exercise which one would take by contraction of the muscles of the neck would have any local effect. Even the constant activity of the abdominal muscles in respiration, 12 to 15 times a minute at least, throughout hours, days, weeks and years, does not prevent the development of immense masses of fat between the abdominal muscles and the skin. Exercise of the neck and the throat would have no effect on preventing a double chin.

Scalp Transfer

To the Editor:—Are scalps transferable? Could the scalp of a person living or newly dead be transfered to that of a living being? Would any scars remain? Would the operation be dangerous? Would the hair take root and live?

H. J., Illinois.

Answer.—Transferal of scalp tissue in whole or in part from one person to another presents the same problems that pertain to any type of skin grafting from one person to another; this is a surgical not a dermatologic problem. Such transferal would require a complete skin thickness graft. Superficial grafting of small pieces of tissue, as is done occasionally in superficial wounds, would not be successful in the case of the scalp because of the depth of the hair papillae or roots. These latter are deep in the cutaneous tissue. Cases of almost complete avulsion of the scalp have occurred accidentally, in which instances suturing of the scalp has been successful with subsequent retention of hair. Any operation of the type referred to would naturally result in permanent scarring along the suture lines and would be a complicated operation but not necessarily a dangerous one. If the hair were viable in the graft and the graft was successful, the hair would be likely to continue growing. Transferal of scalps by grafting for cosmetic purposes, such as in the treatment of baldness, is of course an impractical if not an impossible procedure.

Cold Endurance

To the Editor:—During the cold weather one person may always feel cold; another may not feel the cold. Is the person who endures the cold better than the other called warm blooded or cold blooded? Why?

H. L., New York.

Answer.—The terms "warm blooded" and "cold blooded" which you use are popular terms but they do not mean what they say. Warm blooded animals are those whose body temperature is maintained at the same level regardless of outside temperatures. A better name for them would be "constant temperature animals."

Cold blooded animals are those whose temperature varies with the environment. They are able to sustain life in cold weather by adapting themselves to the low temperature through a variation of body temperature to correspond with the outside temperature. In cold weather they will be sluggish and in some instances appear to be dead.

Among human beings, differences in ability to withstand cold are determined in part by the amount of fat immediately under the skin. Because they are better equipped in this respect, women withstand cold better than men. In general, fat individuals feel the cold less than lean persons. Another factor is the rate at which body chemistry proceeds. This is governed largely by the thyroid gland. Persons with deficient or inadequate thyroid secretion, although they may be fat, are liable to feel cold severely, while persons with overactive thyroid may be thin but not highly susceptible to cold.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

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The W P A SCHOOL LUNCH

(*Continued from page 1083*)

relief because the father had a job—as a milker at a dairy. His wages could not be stretched to hire a housekeeper, and his working hours made it impossible for him to give much time to the supervision of his home and family. As a result of the investigation these children were certified for the free lunch.

Then there was the little girl who presented a palpably forged excuse for absence from school. Called to the teacher's office and asked for the truth, the child admitted that her brother had written the excuse and that the real reason she had stayed home was that her mother was sick. A visit to this home disclosed that there were nine children, all undersized, that the father had deserted the family, and that the mother had epilepsy.

A small girl in one school always had a little lunch money, but instead of getting a hot dish she would buy two sandwiches. Inquiry revealed that she was dividing her daily lunch with a young friend who had none and who was too timid to make her needs known.

While those who can afford to do so pay for their lunch in these Northern California schools, as elsewhere, no school may operate a WPA lunch project on a profit basis. If a profit should be shown, through operation of the project on a contract basis for food supplies, it is immediately reinvested in the lunch program. Only the teacher or counsellor knows which children have no funds with which to pay for their lunch—and only such children have free tickets. Even teachers who give of their time to the successful operation of the project must pay for their lunches, and the WPA workers bring their lunches with them as they do on other WPA projects.

School authorities are becoming increasingly aware of the fact that a school lunch program which operates for only three or four months of the year is inadequate. Such a program should operate throughout the school term or, better still, on a yearly basis. Some projects now function every day in the year except Sundays and Christmas Day and are really meeting the problem.

Expressions of community interest in the school lunch project, which operates in 47 states, the District of Columbia, and New York City, have been almost universal.

Indicative of this interest is the result of a survey recently conducted by the *Ladies' Home Journal*. In a letter dated June 14, 1940, Beatrice Blackmar Gould, co-editor of the *Journal*, tells of this survey. The question sent to women all over the country read: "A plan has been suggested for the Government to give free lunches to all school children who are undernourished. Do you approve or disapprove?"

Four per cent of the women to whom the question was sent could not make up their minds. Of those who had a positive opinion, 87 per cent approved, 13 per cent disapproved. The 87 per cent who approved were then asked if they would still approve if their own taxes had to be increased to pay for these lunches. Again 4 per cent were undecided, but 92 per cent of the women who had made up their minds on this point said "Yes." Eight per cent said "No."

Taken all in all, it seems evident that the school lunch is one project which, once tried, no American community wishes to go without. Its good results are manifold. It builds up the health and improves the morale of the individual child, thereby acting as a safeguard for the welfare of the school and community. It provides an opportunity to establish good eating habits, personal cleanliness, and good table manners for all children who eat in the school lunch room. It helps to teach them consideration for the rights and feelings of others. And through the garden and canning units, it encourages entire communities to make the best use of their local resources.

Moreover, and this is a point particularly pertinent in this time of national emergency, the service rendered by the WPA school lunch project in building sturdier bodies and more alert minds, is laying foundation stones for a greater America—an America which shall be impregnable to subversive forces that would destroy any part of our democracy.

WAR—and Medical PROGRESS

(Continued from page 1051)

gastro-intestinal disorders, infectious diseases and neuropsychiatry, were scarce. Also scarce were specialists in the field of preventive medicine and public health. When the war emphasized the need for medical men trained in these fields, greater interest was encouraged and this inevitably led to advancement of internal medicine.

Attention was directed during the war to the importance of impaired function as well as anatomical defects. This was prompted by the knowledge and experience gained from innumerable examinations of normal and defective men.

The specter of starvation hovered over Europe during 1914-1918. This stimulated research, focused the minds of interested medical men on the prevention and correction of food deficiency diseases, and taught us much concerning nutrition. As a result, the world has become "vitamin minded." Although there has been excessive commercial exploitation of vitamins by food and drug manufacturers and by faddists, there has nevertheless been a high degree of scientific accomplishment in this field.

During the war the food shortage of the Central Powers was a gigantic involuntary experiment in under-nutrition. The sharp increase in tuberculosis showed one of the harmful effects of under-nourishment. The lessened prevalence of diabetes mellitus in the under-fed countries demonstrated the beneficial effect of restricted dietaries in diabetes.

Although slow progress was made toward the eradication of influenza which swept over the world in 1917-1918, it is logical to believe that more powerful medical thought and coordinated action were turned upon this disease because of the effect of this scourge upon the military efficiency of the belligerent countries.

Considerable advance was made in our knowledge of lethargic encephalitis (sleeping sickness), pneumonia, and epidemic meningitis. The doctors of that period were able to observe how the respiratory diseases spread in the crowded cantonments and in the training camps of the rear areas. They noted the relative infrequency of serious respiratory diseases in the front lines and in areas where troops were hardened by outdoor work. The retention of patients under military control following recovery facilitated consecutive study of sick records and evaluation of the results of various forms of treatment, thus laying a better groundwork for an ultimate victory over the respiratory diseases than was possible in civil communities. The stimulus to scientific accomplishment induced by the pandemic nature of influenza, intensified by its prevalence in the world's military forces, resulted in important gains against this and other infectious diseases. Although influenza remains unconquered, most of the pneumonias have been tamed by the development of satisfactory therapeutic serums and effective chemical substances, notably sulfapyridine.

Laboratory medicine, called upon to find an antitoxin to combat the fatal ravages of gas gangrene, accomplished this task before the war ended. It is apparent that countless lives have been saved and will continue to be saved by this achievement of laboratory science. A troublesome mouth infection, Vincent's stomatitis, known during the war as "trench mouth" was studied because of its prevalence and influence on the noneffective rate of troops. Its cause was discovered and satisfactory methods of prevention and treatment were developed.

Progress was made in the realm of heart disease, and as the post-war years have unfolded, veterans afflicted with degenerative diseases of the heart and other organs have flowed in increasing numbers into government and civil hospitals, affording hitherto unsurpassed opportunities for studying these diseases. Exceptional opportunity arose for the study of nervous and mental diseases, especially the ill-named "shell-shock" and certain ill-famed and questionable mental ailments by which malingerers, so-called conscientious objectors and unclassified moral degenerates sought to evade military service.

Fever therapy, now regarded as a valuable adjunct in the treatment of syphilis of the central nervous

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system, was first used for this purpose during the World War, when the blood of two German soldiers with malaria was injected into the veins of patients suffering from general paresis, a grave syphilitic disease of the brain. The results were so encouraging that investigation was continued and resulted in general acceptance of this method of treatment.

Aviation medicine was born of the advances in medical knowledge which accompanied the tremendous impetus given to aircraft development in the nations struggling for air supremacy.

The war created a demand for physiotherapy and occupational therapy in the rehabilitation of medical, surgical and mental casualties. These new auxiliary medical branches have established their usefulness, especially as aids in the management of orthopedic and neuropsychiatric patients in hospitals throughout the world.

After the unleashing of chemical warfare by Germany in 1915, there came a period of intensive research to develop protection against these deadly gases. Now, perfection of defense against chemical agents has proven of value in civil industry as well as in warfare. Investigation of poisonous gases and other harmful chemical agents focused attention on industrial hazards that had previously been neglected.

Preventive Medicine, Public Health and Sanitation

During the World War preventive medicine was elevated to a much higher level of importance than it had previously occupied. The war demonstrated beyond all doubt the value of typhoid vaccine and tetanus antitoxin. It was possible to compare large groups of vaccinated men with large groups who were unvaccinated. The occurrence of typhoid fever among those who had received protective vaccine was negligible and in striking contrast to the high incidence of typhoid in armies where such vaccination was not required.

Knowledge of the dangers of overcrowding and of the importance of isolation of patients and segregation of contacts exposed to meningitis, influenza, and other infectious respiratory diseases was emphasized during the war when the importance of conserving manpower intensified efforts toward disease control. This mass demonstration of effective and ineffective control measures and the spread of general public health knowledge inevitably led to advancement in this field.

In most of the mobilized armies it became necessary to develop standardized methods of controlling and treating venereal disease. These methods were ultimately made applicable to the management of such diseases in civil life, and after the war standardization of treatment was adopted throughout the world on a far greater scale than was in effect prior to the war. Measures aimed at control of the social diseases were also promulgated, and educational programs to prevent venereal infections were first encouraged on a large scale during the World War. The United States Army's practical system of venereal disease control, developed in 1917, is properly regarded as an outstanding contribution to the advancement of preventive medicine. Civilian populations throughout the world are now approaching the problem in a somewhat similar manner as enlightened public opinion encourages educational and other practical preventive measures.

Trench fever, a common disease of World War days, is practically extinct today, conquered as a result of the researches of the American Red Cross Trench Fever Commission. Its disappearance is due not only to the discovery of its cause, but also to the improved knowledge of sanitation, making it possible to inhibit its development and prevent its spread. World War records indicate its importance by revealing that at one time approximately 60 per cent of all hospital patients of the British Expeditionary Forces were suffering from trench fever, and that one third of all the sickness in the British Army during the war is thought to have been caused by this louse-borne fever, now a forgotten disease.

Unusual interest became centered in child welfare as a result of the war and the acute problem facing European countries. It was realized that many of the numerous physical defects disclosed by military examining boards might have been prevented had intelligent thought been given to the subject of child conservation in the past.

The World War doctors, trained in sanitation, returned to civil life, and demobilized soldiers returned

to their peaceful pursuits with the good effects of sanitary control measures impressed on their minds. These were obviously powerful factors influencing the future progress of preventive medicine. The war has fostered propagation of general knowledge concerning sanitation and especially concerning the importance of sputum, excreta, flies, lice and other vermin in the spread of disease. The negligence in former years, with respect to hygiene, and the needs for the future were emphasized.

The campaign of the American Typhus Fever Commission in poverty-stricken Serbia in 1919 is a striking example of how the public was educated in preventive medical measures. The terrible epidemics of deadly typhus fever spread in Serbia, Poland and Russia as an aftermath of the war largely because of the filth, squalor and chaos left in the wake of the great conflict. The United States government was inspired to send scientific aid and practical relief into Serbia and Poland. A well-organized Typhus Fever Commission went to Serbia and was given dictatorial powers by the helpless government of stricken Serbia. The success of this American Commission was due largely to the magnificent educational program which it carried to a successful completion, dispelling the superstitions and fatalistic philosophies which had prevailed in that country. It taught the people how to avoid infection.

Submarine warfare focused medical attention on the problem of ventilation and the dangers of carbon monoxide and lack of oxygen. This not only aroused educational programs to prevent these hazards wherever they might occur, but also led eventually to successful developments in air-conditioning. Likewise the modern rat-proofing of ships, docks, warehouses and other buildings was promulgated by sanitary studies and experience gained largely from the World War.

Medical Supplies and Equipment

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research and manufacture of chemicals, drugs and various medical equipment and supplies.

From the mud and blood of the World War certain benefits to humanity have arisen which prove that some good may come from the evils of military conflict. As the years roll on, the light of knowledge increases and reveals more clearly how medicine has advanced through the storm and ashes of the holocaust of 1914-1918. It is probable that many valuable contributions to the advancement of medicine might never have come to light except through the darkness and despair of war.

In addition to concrete and tangible achievements, it cannot be denied that the World War contributed to the advancement of medicine by instilling into the profession a higher sense of duty and idealism, a stronger moral fiber and a deep pride of constructive accomplishment.

The first American soldier killed in France after the United States entered the war was Lieutenant William Fitzsimons, a young Army medical officer. More than three thousand British medical officers were killed, while more than 23 thousand British physicians were wounded in action. The staggering loss of medical officers of other nations is tribute to their patriotism and unselfish devotion.

A tired Canadian Army surgeon, Major John McCrae, paused in his work at a busy dressing station in Flanders in 1915 to gaze out over shell-torn fields, blanketed with red poppies. It was during a lull in the hottest phase of the second battle of Ypres that he jotted down the inspired words of his poem, "In Flanders' Fields," which became one of the war's finest contributions to literature. As the lull passed and fighting increased, the wounded again flowed into his blood-stained dressing station. It is not difficult to picture Major McCrae, weary with fatigue and loss of sleep, battling valiantly and skillfully to save the lives of his wounded comrades. Meanwhile, throughout the war-stricken world thousands upon thousands of other weary doctors and nurses labored. The full extent of their contributions will never be known, but when they come to their journey's end their good work will be carried on.

IRON LUNGS for an EMERGENCY

(*Continued from page 1080*)

motor, and belted it up to eighteen revolutions per minute, the approximate respiratory speed. Arthur Carlson, our blacksmith-millwright, built a new flapper valve for mechanical operation, while Ragnor Vendien, our machinist, adjusted a wooden cam to the surface of the turntable and fitted a wooden push rod from the turntable to the new valve. A turn of the electric switch key and the nurse was able to cease her monotonous metal chant—"One hundred and one, one hundred and two; open, close. One hundred and one, one hun—." We sealed up the now useless, hand-operated valve with adhesive tape, and our first respirator had become a self-respecting automatic unit.

At one end of the shop, three engineers are pushing slide rules back and forth. Such words as cubic content, rate of escapement and length of stroke are audible. No more Rube Goldberg contraptions for them. We were going to build real respirators now. At the other end of the shop we were going to try our luck with a respirator fashioned from a 50 gallon oil drum. The patient in question was a baby and the dimensions of the drum appeared adequate. It was our intention to attach this unit to our big Drinker respirator. "Trailer units," we came to call them later. We were convinced we could safely do this, for the Drinker had a vacuum capacity of about 20 centimeters of water and we thought 15 could be obtained in both units when the "factory job" was being operated at full capacity. This conversion was ridiculously simple. The sheet-metal worker, Frank Cramer, cut out one end of the drum, leaving a flange about 3 inches wide. To this flange we could attach a new wooden head, with a 9½ inch circle cut out of the center. While he was welding six bolts into this flange and attaching the now familiar sponge-rubber weatherstripping to the surface of the flange, we completed the wooden head and the wooden clamp which held the gasket in

place and supported the patients neck. The only other vital fitting the drum required was a 2 inch standard pipe nipple, for the entire unit was a dummy which would react perfectly to the vacuum and rhythm of the Drinker. Some one removed the bung from the drum and looked up with a grin. "What a break," he said. "This aperture is threaded for a 2 inch standard pipe nipple." Cramer then took some measurements of one of the glass inspection plates on the Drinker and quickly made an adapter to replace the plate. We attached a hose from the Drinker to the "trailer" and another unit was ready for occupancy.

Most patients can remain out of respirators for a period varying from minutes to hours, so we called in our sailmaker, Fred Perry, who made canvas slings, called "pipe berths" by sailors, for the mattresses to rest upon. These slings were laced through brass sail-grommets, over frames made by welding rectangles of steel tubing and formed a comfortable bed. He also made similar slings for head rests, attaching them directly to the units. Gradually things began to take shape and we now had two methods of producing lungs; plywood for the wooden ones and oil drums for the iron lungs. Single oil drums for the babies and two drums, butt-welded together, for the grown children.

Under the direction of Lincoln Frazier, engineer and one of our hospital trustees, the engineers designed an excellent lung. It looked suspiciously like one of the big commercial jobs, from which I suspect it was copied. It took some time to build, for we only worked on it when there were no emergency calls. Its advantages over the factory units were: First, it was provided with one of our original, crude, flapper type valves, as an auxiliary installation, so that it could be used in connection with an ordinary household vacuum cleaner in case its own actuating medium should fail. Second, it was a "double ender" and, in a pinch, could contain two small patients if need should arise. Combination ends were provided for one or two patients. Third, it had a flat top and nurses feeding helpless children found this top a convenient place to put their trays.

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We tried to keep ahead of the demand and maintain one completed respirator on the shop floor. Nevertheless, this has not always been possible and one Sunday it was necessary to search for carpenters and cabinet makers to turn out a rush unit. When we offered to pay them for their services, they were indignant and told us to call them again at any hour of the day or night. We advertised in the local paper for store window display turntables, and all merchants who had anything resembling one of these gadgets registered with us and told us they would deliver them whenever we were in need. Winsor Graves, a member of a firm distributing commercial lungs, spent several days with us and did his best to show us how to beat him at his own game. We have met with such complete cooperation in every phase of our infantile paralysis epidemic that our faith in American fundamental kindness is justified and increased.

St. Luke's Hospital now has ten "iron lungs" in continuous operation, except when deaths occur. Four of these are commercially made and six, with a capacity for eight children, are improvised emergency affairs. Some of them are complete, others are rudimentary. All of them are functioning and improvements are added whenever time and the patient's condition permit. We are told that we have the largest battery of respirators ever accumulated in the United States. A survey conducted by one respirator engineer convinces him that our epidemic is the most severe he has seen and that our percentage of respiratory cases is running the highest, nearly 10 per cent.

It is essential that our patients have months of convalescent care. For this reason, in association with the Northern Michigan Children's Clinic, the Bay Cliff Health Camp and the Michigan Crippled Children's Commission, we are opening a convalescent home which will be staffed by Dr. Cooperstock, pediatrician of the Northern Michigan Children's Clinic, Dr. Eugene Elzinga, member of the Michigan State Orthopedic Society, and a competent force of supervisors, physiotherapists, nurses, orderlies, and others who may be necessary to this project. We have done our best to solve our problem and believe we have met with some measure of success. If our experience can prove of value to other communities, we will be proud and grateful for the opportunity to contribute whatever advice and counsel we are able to give to the cause of children suffering from this terrible disease. We feel that we are too close to our emergency for useful consideration of future procedure, but we are convinced that steps must be taken throughout the United States for better cooperation and organization in locating these victims, in transporting them to those hospitals best fitted to give pediatric and orthopedic care, in providing respirators for those in need and in establishing convalescent homes where the fine work done in such hospitals may be completed so that these unfortunate children shall stand the best chance of becoming whole, useful men and women.

SENSITIVITY TO FOODS

A diagnosis of sensitivity to particular foods should not be made solely on the basis of skin tests, but should include a systematic analysis of the patient's food habits and experimental elimination of suspected foods from the diet, Herbert J. Rinkel, Kansas City, Mo., points out in *The Journal of the Missouri Medical Association.*

Skin tests may be made by injecting into the skin soluble forms of the suspected food. If a hivelike eruption forms around the site of the injection, the patient is considered sensitive to the food in question. The doctor should know what the patient is eating, know when the patient eats the food, know when he has symptoms and the type of reaction, and carry out, if necessary, deliberate individual food tests for every food used in the diet. This involves the elimination of various foods one by one, in order to discover which food or foods are responsible for the symptoms.

It is necessary to know the exact composition of such foods as commercial soups, salad dressings, ice cream and cured meats.

Give Them Dancing!

By MARJORIE HOLMES MIGHELL

SO you're thinking of giving your children (or let's reduce the problem to its simplest possible terms and say child) dancing lessons? A laudable decision, fond parent, but one which should be carefully circled and observed from all sides in advance.

What are your particular motives in exposing your child to such training? Naturally you want him to develop grace, poise, and a sense of rhythm. On the testimony of other parents who vouch for stimulated appetites and gained pounds, you are convinced that it will be good for him physically. Or maybe he's an "only" who needs to fraternize with others of his age level.

If you fall in any of these classifications, you are Parent Model A, whose general, if rather vague, perspective is: Dancing lessons are an "advantage" that you want your lamb to have, along with a smattering of musical knowledge, good teeth and invitations to the right birthday parties.

With this outlook, your difficulties are negligible. You need only pick the studio patronized by children you want yours to emulate; once or twice a week see that they are chauffered to the doorstep and called for later; and provide the proper footgear and costumes. Of course you can take the whole business more seriously, and if you're going to get your money's worth you'll have to.

That, however, immediately converts you into Parent Model B, whose earnest, if secret, belief is that your chitling has talent and that it should be cultivated. You want him (but more commonly "her") to master a few routines. And, should progress justify the ambition, you wouldn't be averse to a stage career for him, her, or them.

Well, Parent Model B, you're in for something; so is Model A-B, or the doting mama harboring a combination of motives—"I think it's so nice for them, and besides my Janey Jo is talented. Why, my dear, when she was only 2—." We now interrupt an hour's discourse on the marvels of Janey Jo and get down to the practical business of preparation for training in dancing.

Such preparation may seem superfluous, but only because it's practically never done. If it were done, however, it would simplify matters immensely. So if you haven't yet taken the plunge (and can muster sufficient nerve after reading this non-partisan piece), heed a few tips.

(1) If you have a preschool child, teach him to count at home—at least to ten. Need I mention that every step is based on counting, or point out the valuable lesson-time wasted when a dancing teacher has to stop and attend to this little duty that must be accomplished before a pupil can even comprehend what she's talking about?

A delightfully simple method of teaching the very young child to count is to make a chant of the numbers, applying them to some rhythmic play activity of the moment—singing out: "One! Two! Three!" and so on as you swing him, or bounce a ball, or balance him—now high, now low—on a teeter board. Soon he'll be calling the numbers with you, or humming

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them to himself when he plays alone. As soon as he's sure enough of the proper sequence to make it fair, the whole business can be turned into a game—"Let's see how far you can count, Bobby. I'll push you in the swing till you make a mistake."

Maybe it's purely personal fancy, but it seems to me that counting thus taught to motion invariably helps a child make an easier start with his dancing—which is, after all, counting directly applied to motion.

(2) Another thing that you can teach your youngster, effortlessly and to the benefit of all future studio work, is muscular coordination. Even children of 2 like simple bending and stretching exercises. Have a daily somersault session on the bed—preferably in the morning, with windows opened wide. Turn on the radio; lie flat and kick to the rhythms, or hop up and go gaily prancing through the house. Do push-up back-bends, which look thrillingly hard in execution, but are easy even for a baby, and excellent for taut backs and sagging tummies: Lying on your back, lift your body by pushing with the palms of your hands and the soles of your feet. You'll look something like an arched bridge. Try to get your head completely off the floor, or—and children love this one—rise to your shoulders, bracing your hips with the palms of your hands, and ride a bicycle.

All of this works wonders with your child's sense of rhythm and balance—as well as with your own figure. And since few teachers care to work with babies under 3 (a great many prefer them to be 4) why not improve the interval?

(3) Above all other considerations, see that your child is given a thorough physical examination before subjecting him to the rigors of dancing. I am in hearty accord with the theory that dancing is healthful but the presence of a heart condition or some other weakness might make it actually harmful. Play safe—have a thorough physical examination first.

The right studio, obviously, means the right start, on which depends the success of the whole venture. Snoop through every dancing school your town boasts—and don't be partial to mirrored salons with velvet rugs. Some are all right, but some are all front—for which you'll pay the dividends. Many a more humble attic harbors equipment just as good and teachers just as competent, who can afford to charge less. A warning, seemingly paradoxical, however: Don't go bargain hunting. In this, as in anything else, you pay for what you get. Just be on guard to see that it's instruction you're tapping the family cash register for, not merely atmosphere.

Visit studios armed with the following questions, verbal and mental:

(1) Is the place clean? (Particularly toilets and dressing rooms.)

(2) Is there adequate equipment? (The prime essentials are mats for acrobatic work, horizontal bars, a piano not too badly out of tune and some one to play it.)

(3) Does the teacher hire a good, dependable pianist? (A common practice among struggling instructors is to exchange work with musical mamas—"You play so many hours for me and I'll teach Johnny free." Avoid becoming the victim of such unstable arrangements. Johnny's mama is likely to be far less conscientious about playing for your cherub than she is for her own.)

(4) What are the qualifications of the teacher herself? Where, with whom, and how long did she study? Is she moderately patient? (Arrange to observe during an hour when she's conducting a class of your own child's age level.) Do her pupils seem to like her? Is she particularly apt at teaching the type of dancing in which you wish your budding ballerina to specialize? Does she offer a thorough fundamental course in ballet? Ballet includes toe and finger flutters, barefooted fauns chasing butterflies and all that! You may not enjoy watching it, but an early mastery of ballet is what makes all other dancing beautiful. And it will give your child grace and poise as nothing else can. Insist upon ballet—plenty of ballet.

(5) What skill do this studio's advanced pupils show? To settle this, watch some of them at work during your reconnaissance flight, and if possible attend some of the seasonal revues when all and sundry strut their stuff.

Now for that little matter of dancing school homework, called practice. Oh, but you hadn't counted on that? Well, neither had I. But it's one of those things you've got

to go through if you're in this for results and not simply to keep up with the Van de Vorts. Just as you wouldn't expect your offspring to become musically nimble-fingered without a daily scale-running session, neither must you imagine he'll develop any dancing prowess without going through his exercises and routines regularly.

You can use two technics in dealing with this necessary evil: The "Get in there and practice" method, or the "Come on, let's dance." approach. The first is practically pointless. Few children—or adults, for that matter—can remember step combinations unless they're written down with explicit directions for their accomplishment. Naturally a child can't be taking notes during a lesson. The only possible source of material to be used at home is for you to attend each lesson armed with notebook and pencil, there to jot down what goes on, asking the teacher for elucidation later. Then when it's time to practice, you've some "sheet music" as it were, to work from. Furthermore, a notebook grows more valuable with age. In the small loose-leaf model we use, I have permanent records of every dance my little girl has learned, from her first baby shuffle-step, stamp-stamp to her present intricate routines; every acrobatic turn and ballet movement, even the words and gestures to every song.

But since even your small prodigy can't be expected to interpret: "R. Hop-sh-hop-step-step-clap; L. hit-ball-change-slap R."—at least not immediately, you'll just have to take him to the basement, attic, or back bedroom where there's the least furniture and the floors can't be hurt. A piece of gas pipe, or even a bedstead or table of the proper height, serves very nicely as a "bar" we've discovered, providing it's firmly grounded and can be grasped easily. An old comforter with a cheesecloth cover provides a most adequate "mat." An old rug works equally well; likewise a regulation Boy Scout pallet, so I'm told. The point is, imagination can furnish ample equipment. You, however, will have to furnish the supervision.

On you must depend the setting of a daily practice hour—and keeping it. On your attitude rests the success or futility, likewise, of such a session. Nothing whatever will be accomplished—and a great deal will assuredly be lost—if you sit and direct with a martyred air of duty, scold, criticise, or become impatient with your youngster's mistakes. Dancing was meant to be fun. It has to spring from pure childish happiness or it isn't good dancing. How can a browbeaten, straining, worried child possibly be expected to dance well? Yet it was once my misfortune to know a glowering, switch-toting woman who, because she conscientiously attended every lesson and sat guard over a long daily practice, imagined she was "freeing the personality" of her cowering—and consequently hopelessly clumsy—little girl.

To get results from the time you sacrificed either to studio lessons or home practice, you've got to be a one-mama cheering section, smiling encouragement, shouting praises, lavishing love. Convince your small dancer that you're proud of and delighted with his efforts, and he'll not only dance with more agility and ease—he'll emanate that happy radiance that's so important behind footlights—or anywhere else, for that matter.

Personally, I've found that the best way to make practicing fun for both myself and my daughter is to dress for action, in shorts, slacks, or house pajamas and work out with her just as if I were taking lessons too. The reward—boundless enthusiasm and rapid progress on her part, a svelte tummy, buoyant health, and a gratified secret, lifelong yen to study dancing myself.

Now that you've some idea as to how much time this is going to consume, you're probably wondering: How much does it cost? That depends, of course, on the teacher, how many lessons a week you contract for, and whether they are private or with a class. Preschool children usually get off to the best start with a class during their first year. An ideal combination after that is an hour class and a half hour private lesson each week. For this you will pay upwards of $1.50 a week. We once worked with a remarkably proficient teacher who charged a straight $5.00 per month and threw in an entire Saturday morning of studio practice, but her species is rare.

In addition to tuition, you'll be buying one pair of tap shoes, average price $3.00—taps $1.00 extra, and one pair of acrobatic or ballet sandals, average price $1.50. If the

(Continued on page 1118)

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SUGAR BABIES

WHERE do they come from and how do they fare, these juvenile diabetics, these beautiful, intelligent children? Before the dramatic discovery of insulin, in 1922, death for them was certain. But they now can live, grow, work and play as normal children, with diet and a daily hypodermic injection of insulin the miracle fluid.

In the United States alone, according to the latest statistics, there are between four and five hundred thousand persons suffering from diabetes, and unless conditions change, it is probable that two and a half million more persons now alive, but free from the disease, will develop it before they die. Just what percentage of these are, or will be, children is not known. But while sugar-sickness is comparatively rare in childhood, it does occur to children of all ages and is almost equally divided between the sexes, though there is slightly more evidence of it among girls than boys. In a recent survey made in Los Angeles, based on the history of the disease in children under their care over a period of eighteen years, the youngest case reported was 8 weeks old and in all of the children it had developed before the sixteenth birthday. The highest peak for girls according to age at onset occurred between the third and fourth, seventh and eighth years, with a constant high level up to the twelfth year. The danger years for boys were from 7 to 8 and 11 to 12, with a sharp drop for both sexes during the fifteenth year.

There has never been a cured case of diabetes, according to the medical profession, and the people who believe themselves to be cured of the disease, either never have had it, or are not cured. In children, youth is an added hazard, for the contagious sicknesses common to childhood are sometimes difficult for young diabetic patients, though probably because of their excellent diet and general high health level, they seem to have a degree of resistance to them.

The care and treatment of these diabetic children is simple, rigid, but gloriously effective. Briefly, it consists of daily injections of insulin and strict adherence to a calculated and weighed diet. A Benedict test of urine, made in less than a minute in the home kitchen, is a key to the day's sugar. Parents are taught to figure diets, make the urine tests, and inject the insulin, in the hospital laboratory before the child is taken home. The routine is not difficult to learn but it must be followed, for insulin is a two-edged sword, and these children are walking a tight rope through life, in danger of falling into diabetic coma or, the other extreme, insulin shock.

Such reactions are rare, however, in the life of a well regulated diabetic. The watchful parent, after a little experience, quickly recognizes a change in the child. As one mother explained, she has found that if her child suddenly becomes pale and weak, he needs sugar quickly. On the other hand, if there is a gradual loss of appetite, with nausea and perhaps slight fever, over a period of several hours or several days, the child is probably approaching diabetic coma and is in need of more insulin. In either case, minutes count in the life of the patient. With quick diagnosis and treatment, however, there and then, before the eyes, a miracle is performed—the miracle of a great life-giving drug.

Heredity plays an important part in the diabetic picture. In the Los Angeles survey over 36 per cent of the group of children were known to have a family history of diabetes. Acute illnesses, particularly infections of the respiratory tract, also

By ELIZABETH COAKLEY

are found to precipitate the condition. Tonsillectomy, serum and vaccine reactions contribute an additional percentage. The symptoms of diabetes are so simple that the average parent may be slow to consider them. For this reason many cases are not diagnosed until the child is in a state of coma. An infant who shows a very rapid gain in weight should be carefully watched.

While the first shock of diabetes in their child might seem to some parents a tragedy, as time goes on they will find that it has its human and illuminating side and that they can plan for this child a happy, even exceptional life, despite the care and worry he causes. For these children, probably because of this very care, develop beautiful bodies; intelligence ratings show them to be superior mentally.

Take, for instance, little Patrick, a handsome, sturdy, happy, intelligent child. Pat attracted the notice of Hollywood's motion picture personalities who stated that never had they seen a healthier looking, happier or more charming child. Psychiatrists describe him as "an exceptional child, far above the average in intelligence and superior in emotional and personality development. . . ." Pat has now been kept alive by insulin since he was 9 months old.

The case history discloses that he was a healthy 8 pound baby, born of nondiabetic parents in April, 1935. He doubled his birth weight in three months time. When he was 8 months old his father died of lobar pneumonia. Pat became infected with a severe cold but recovered. He seemed to change, however, from a contented baby to an unhappy one, his mother stated, "never quite satisfied with his food and frequently crying for water."

Pat was hospitalized for one month when blood sugar tests were made, insulin was given, diet was regulated; he came back to life and strength, miraculously. The hospital authorities said that he was the first case of juvenile diabetes to enter before coma had occurred, because most parents pay no attention to symptoms of hunger and thirst.

After leaving the hospital, Pat began his diabetic life with two injections of insulin daily, morning and evening, and a special well-rounded diet. That was four years ago. Since that time, protamine zinc insulin has been developed which means the dawn of a new day for diabetics. It is a slow absorbing insulin which requires only one injection in twenty-four hours and works constantly on the patient during that time. It provides a simpler treatment, better control, fewer and less severe reactions. In many cases it is used in combination with the regular insulin. Pat, though only 5 years old, assists in sterilizing the syringe for his morning injections and holds his arm steady while the needles are inserted. He takes this procedure strictly as a matter of course, and explains to playmates who watch with admiration, that these injections make him strong.

Diabetic children who are receiving proper care are probably the best fed children in the world. The diet is calculated in a laboratory according to the growth requirements; meals are planned accurately, weighed on a gram scale, and served to the child, always at the proper time.

The diabetic child can eat anything that any other child should eat, except sugar. But saccharine in foods tastes just as sweet and has no value whatever. A birthday party for Pat is just as gay as any other because he can have a specially made ice cream and cake and it will not make him sick.

CHRISTMAS — FOR BABY
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THUM

The discipline and psychological care of a diabetic child is all important. For absolute obedience must be enforced, and any feelings of inferiority in him must be prevented. From the minute that he is old enough to understand, two rules of life must be impressed upon him: that he must receive his insulin every day and that he must follow his diet. After that he should be treated as any other child. For he has a chronic disease with which he will live—and live a normal life—with other people. So he must grow up, not with pity and emotional overindulgence from hysterical parents, but rather with emphasis on his strength, intelligent care of his body, respect for his good mind, and confidence that he will take his place in life as well, if not better, than the person who has not developed character the hard way of the diabetic.

For this strict health regime does develop character and self-reliance in children. The mother of one little 12 year old girl who has been on insulin for six years, tells me that though at first she looked upon Jacqueline's illness as the end of all their plans for her, now she would not have it any other way. After seeing and talking with Jacqueline I could almost understand how she felt, for a more intelligent, attractive or charming child of her age I have never seen. I asked Jacqueline whether or not she attends a diabetic camp in summer. These camps are staffed with doctors and nurses who watch over the medical and diet needs of the children. I was surprised when she answered "No, because it would interfere too much with other interests."

These other interests are music, art and badminton lessons, besides her regular school work in which she is advanced. Jacqueline carries her lunch to school. She figures her own diets, weighs her own food and administers her own injections. If, during the day she should feel a reaction coming on, she knows what to do to prevent it. This has happened only once in two years. In manner she is gracious and poised. And she presents absolutely no discipline problem to her parents. In fact, they find life on these terms an interesting, dramatic and precious privilege and they have exceptional plans for this child.

For these children grow up and do amazing things in the world. The Hall of Fame contains many names of men and women whose lives depend upon daily injections of insulin. In England, diabetics have organized a national society; they publish their own magazine.

And who knows the medical future of the diabetic? In laboratories all over the world scientists are searching for a cure. Just recently in London, a relationship was discovered between the anterior pituitary gland and diabetes mellitus. A generation ago these children died. Now they live. And the search goes on.

EMOTIONAL DISTURBANCE

The expectant mother who is emotionally disturbed during much of her pregnancy is quite likely to have an underweight, undernourished child, Lester Warren Sontag, Yellow Springs, Ohio, suggests in the *American Journal of Diseases of Children.*

Such emotional disturbance, he explains, apparently promotes excessive activity of the fetus (the unborn child after the third month of pregnancy). Active and frequent movements of the fetus require the consumption of considerable amounts of energy-producing foods which might otherwise be stored as fat. Thus activity may be responsible for the child's being underweight at birth.

The author reports two cases to illustrate the detrimental effects of the mother's emotion on her child's nourishment. He points out, however, that there are many other factors in the environment which also influence fetal activity. Among these are sounds, loud music and fatigue of the mother. Environment has been thought of as something which becomes effective only at birth, but this idea is erroneous.

Sontag also reports studies which show that there is a definite correlation between extreme activity of the fetus and undernutrition after birth. No heavy babies he investigated had been active fetuses and no active fetuses became heavy babies.

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RHEUMATIC INFECTIONS

(*Continued from page 1066*)

any case are increasing fatigue and difficult or labored breathing. Thus tasks which formerly produced no strain on the patient now cannot be done without discomfort, without difficulty in breathing. From this point on, life is relatively short, averaging five years. When the heart actually begins to fail, as is indicated by the patient's inability to find comfort, even when in bed, the life expectancy is about three years. Some persons, however, although affected with rheumatic heart disease of a more chronic nature, are free of all symptoms and live active lives without difficulty.

The invasion of the various organs of the body by rheumatic germs has no sooner begun than serious effects are established on these organs. Yet time elapses before such effects are noted, for all living tissues have such a margin of safety that the functions they initiate do not suffer until these infecting agents have produced an appreciable damage. Not even the earliest treatment can restore the original status of the tissues involved. The best that can be accomplished is to limit the damage and provide the body with time and other factors necessary to repair that damage as much as possible.

In the patient who has definite evidence of rheumatic heart disease, there is so wide a variation in the severity of these early symptoms and signs that it is apparently difficult to perceive principles of treatment applicable to every case. Yet there are such principles and the first is essentially rest, a restriction of bodily activity. Rest in bed is most necessary. The reasonable attitude, even in those cases where the symptoms are trifling, is to confine the patient to bed for at least a week to study the daily temperature and to observe the entire group of physical signs. If the observations tend to be indicative of the rheumatic state, then rest in bed should be prolonged. In this vicious disease the suspect is convicted until he proves himself innocent of all its signs and symptoms.

The rheumatic patient requires after-care just as much as the tuberculous person. There are a few convalescent homes where certain types of rheumatic patients are accepted for prolonged supervision and are suitably controlled in exercise, play and other activities. Other patients, lacking this care following their recovery, often engage in some sort of activity and soon suffer a relapse, causing further severe damage to the heart. Not only can the patient who is properly watched by systematic recording of temperature and skilled observation of signs and symptoms be saved from drifting too far into the active phase before it is noted, but also by regular drill he can be trained to a condition of general fitness and happiness despite his heart ailment. Under the skilled control of the family physician, the patient enjoys a maximum of freedom with a minimum of risk.

When the child resumes school life, there are three things to be avoided: excessive fatigue, exposure to wet and cold, and underfeeding. Avoid these and be guided by the very infective nature of the disease which takes advantage of any loss in the patient's general resistance. In fact, treatment should be founded on the idea of defeating infection and preventing reinfection. Mechanical over-strain is forbidden but takes a secondary place in treatment.

Medical investigators, both abroad and in the United States examined a large number of athletes, engaged in many sports, to determine whether the normal heart could be damaged by exercise. They found that occasionally a heart becomes definitely enlarged after prolonged, strenuous activity, but that after a sufficient rest period the heart returns to its former size. No laboratory tests could prove the presence of even a slight abnormality. The conclusion, therefore, is self-evident that the normal heart, the heart that has never suffered any damage to its muscle tissue, is not harmed by exercise. However, those hearts which are permanently enlarged following the strenuous exercise, they conclude, must have suffered from some muscle damage as the result of a childhood infection.

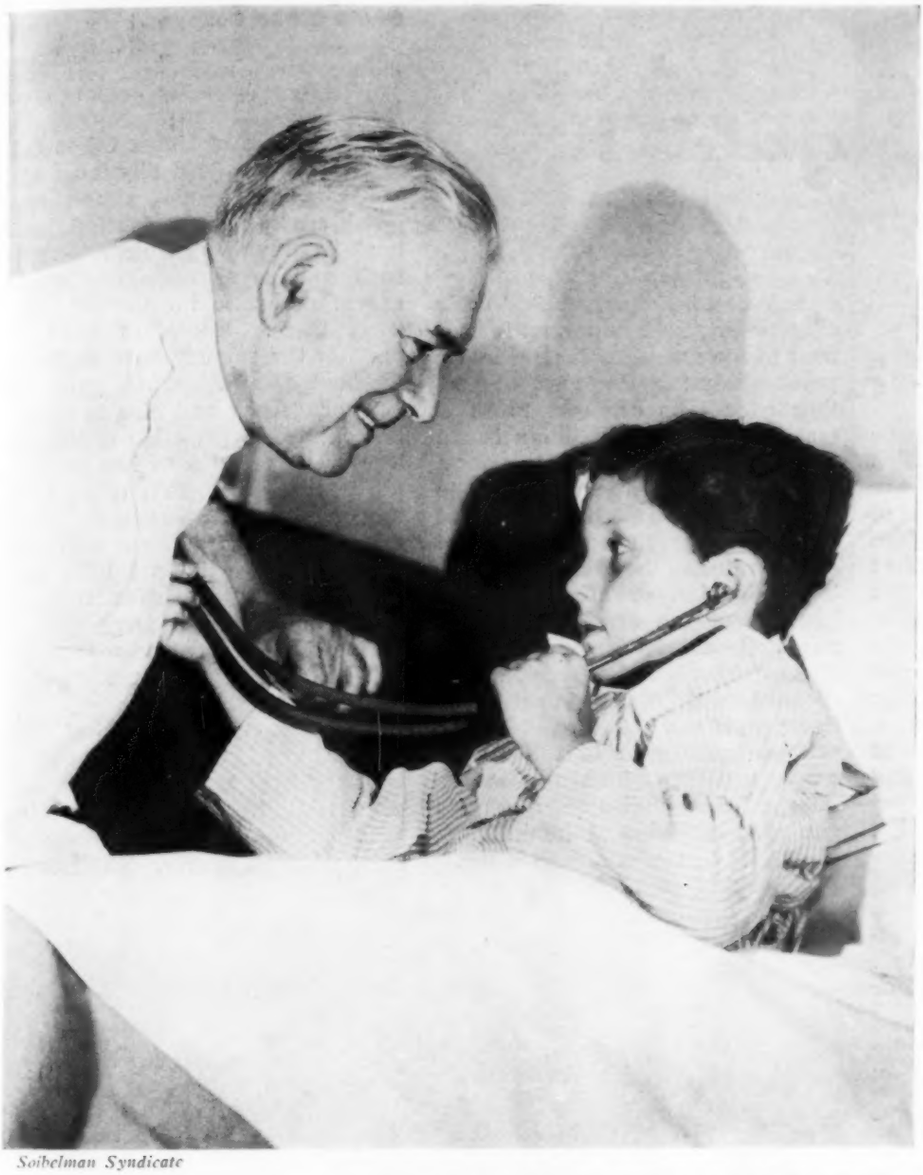
How soon after an infection should the child be allowed to resume its normal activity, let alone indulge in athletics? Because of economic factors, the impatience of mothers, the lure of school and other activities, the reaction of the all-too-wise family and its neighbors to the doctor's admonitions, one truth is self-evident: insufficient rest is maintained after acute rheumatic illnesses. Prolonged periods of absolute rest in bed are essential since permanent dilatation of the heart often occurs in children and young adults when they begin normal activity too soon. Parents and patients should realize, as the family physician does, the necessity of adequate rest.

One of the most pressing needs of the patient is suitable occupation. This illness interferes with his schooling so often and so severely that he does not have the opportunity of becoming mentally equipped for the sedentary occupation to which his heart will probably limit him. He is unprepared mentally and physically. How much better it would be if the child's education could be carried on under proper medical supervision so that his individual aptitude and capability may be given controlled occupation. There must be ample opportunity for open-air life and sunny exposures.

Restriction in diet is entirely wrong and there is no acceptable evidence today which supports ideas that foods concern themselves with aiding or bringing about a rheumatic infection or condition. The rheumatic child requires substantial foods, fats, proteins and carbohydrates, even to an excess, for a rheumatic body needs rehabilitation. The old fallacy of eliminating meat, fish, or eggs must be discarded. Give your child all wholesome vegetables, and by all means give him meats within the limits of common sense as prescribed by your family physician.

No rule can be laid down as to what is or is not permissible in the way of exercise for certain of

(*Continued on page 1114*)



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BOOKS ON HEALTH

Minor Mental Maladjustments in Normal People

By J. E. Wallace Wallin, Ph.D. Cloth. Price, $3. Pp. 296. Durham, N. C.: Duke University Press, 1939.

The author of this little volume presents 200 life histories which show traits or symptoms that are usually considered characteristic of severe mental disorder. Modern psychologists take a great deal of interest in the mental disorders which are mild and which may or may not be incapacitating, because these rather small disorders can make people uncomfortable in their social relationships. Dr. Wallin, who is the author of several books dealing with mental hygiene and clinical psychology, has secured about 600 case histories from about 300 respondents. The questionnaires which he sent to his subjects dealt with those personal problems which are usually considered important symptoms in the neuroses: food fads, antipathies, fears or phobias, superstitions, peculiar ideas and obsessions, fantasies, anxiety, worries, inferiority feelings and others.

Throughout the volume the author refers to "the student," implying perhaps that this book could be used for classroom purposes, but the only student who could really profit by such a book would be the student of mental disorders. It is enlightening from the standpoint of presenting masses of material showing that the phobias, obsessions and other traits which we generally consider traits of the seriously maladjusted, those requiring psychiatric treatment, are also to be found in a large number among persons who are, on the whole, well adjusted. Almost every type of symptom which one would find in the badly maladjusted nonhospitalized mental case is found in a minor degree in Wallin's book. The meaning of these symptoms and interpretations of their causation and the amount of interference that they cause in the lives of the subjects are barely touched on. In some cases, however, we find early conditioning to be important in contrast to the sexual basis stressed by psychoanalysts. However, the author educes no evidence to show that the latter interpretation is not to be preferred to his own.

This book would be of interest to psychiatrists and perhaps advanced students of psychology. It is not of any value to the ordinary reader to teach him, or even enlighten him, about the workings of the mind. It should have a salutory effect, perhaps, on overzealous students of mental disease, for it shows that people can get along, keep out of trouble and be relatively happy with symptoms which are usually interpreted as indicating a serious abnormal condition of the mind.

LOWELL S. SELLING, M.D.

She's Off to College

By Gulielma Fell Alsop, M.D., and Mary Frances McBride, M.A. Cloth. Price, $2.50. Pp. 275. New York: The Vanguard Press, 1940.

The authors of "She's Off to College," one a college physician and the other formerly a freshman girls' advisor, have labeled their book "a preview of college." From such sources as these one would expect authentic information; and it is there. Educators from all parts of the country have endorsed the book as a dependable guide for the college girl and also as an enlightening interpretation of the college scene of 1940 to her parents.

The many incidents taken from the authors' experiences, their numerous conversations with college girls, and the pat little narratives constitute an effective sugar coating for a rather large dose of advice which a seventeen year old girl might otherwise not care to sample.

The book covers its subject with thoroughness, beginning the survey with the high school graduate and conducting her through her four academic years until she has won her bachelor's degree. The follow-

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"He bailed out of his airplane, counted three, and then pulled the zipper on his flying suit."

ing broader phases of a college experience which differentiate this period from others in the student's life are discussed: the mastery of an adequate study technic; the new social life; personal relationships and self realization, and the possibilities awaiting the woman college graduate.

The fact that the academic career here depicted is apparently limited to the program of a woman's college (recognizably Barnard College) necessarily renders the book more valuable to the prospective girls' school freshman than to her friends in coeducational institutions.

Occasionally one is aware of a tendency toward repetitiousness, which may, however, be partially justified on the basis of the need for emphasizing certain important points, for example, the statement that no other four year period in a girl's life can equal her magic college years.

The numerous advantages a college woman has over others in every field are repeatedly stressed; but, perhaps regrettably, the corollary—that the college woman has therefore a greater responsibility—is omitted. Some readers may feel that there is lacking at certain points in this study the "solid" and specific counsel that a campus girl frequently needs and wants.

The summary at the close of each chapter is addressed directly to the potential college student, who will find the outlined statements useful. Rather consistently throughout the book the general information is directed to the mother rather than to her college girl daughter.

M. E. A.

Nutrition and Physical Degeneration

By Weston A. Price, D.D.S. Cloth. Price, $5. Pp. 431. New York: Paul B. Hoeber, Inc., 1940.

This book is the account by a dentist of travels into many isolated regions to observe the character of the teeth, dental arches and general facial formation of the people and to see what changes occur when these people come into contact with the outer world and incorporate highly milled cereals and sugar into a diet practically devoid of both. For example, in 1931 and 1932 he visited the Loetschental Valley, high in the Swiss Alps, which had up to then been almost entirely cut off from the rest of the country but was made accessible to him by the building of a long tunnel and railroad. Here he found some 2,000 persons who lived on foods produced within their own area. They had developed a fine physique and remarkable freedom from tooth decay on a dietary in which milk, cheese and whole rye were the important staples. In another region, where a road had been open for several years, and where a modern bakery was providing white flour products of all sorts and jams, marmalades, sugar and sirups were being exchanged for dairy products and rye flour, the number of decaying teeth among the children examined was greater than in the Loetschenthal Valley.

Similar observations of other peoples include Gaelics, Eskimos, American and Peruvian Indians, Melanesians and Polynesians, various African tribes, Australian Aborigines, Torres Strait Islanders and New Zealand Maori.

It is regrettable that no mention is made of the long and careful study by Orr and Gilks[1] of two tribes in South Africa also visited by Dr. Price; of the excellent discussion of racial distribution of caries by May Mellanby;[2] of the studies on food and nutrition of African natives published in a special number of Africa in 1936.[3] One important question bearing on the whole situation seems to have been entirely neglected! What determines the native's choice of diet? Sometimes the local diet produces an excellent stock, and sometimes it is so poor that the tribe dies out. Often it is on the borderline of adequacy, and any diluting with foods lacking protective factors, such as white flour and sugar, inevitably results in physical deterioration.

The author is entirely too much inclined to the idea of "primitive wisdom" and fails to take account of such determining factors as the resources of the environment and the native ways of using them, the incentive to work, and the many notions, emotional, religious and

1. Orr, J. B. and Gilks, J. L.: Studies of Nutrition: The Physique and Health of Two African Tribes. British Medical Research Council, Special Report Series No. 155, 1931.

2. Mellanby, M.: Diet and Teeth: Part III. The Effect of Diet on Dental Structure and Disease in Man. British Medical Research Council, Special Report Series No. 191, 1934.

3. Africa, Journal of the International Institute of African Languages and Cultures, Vol. IX. No. 2, April 1936.

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social, which determine how foods are used. To diet are ascribed changes in physical structure and mental and moral status which are due to complex causes, in which the role of the diet is not learned by the casual observations of a traveler.

The author's concepts of the modern science of nutrition are faulty, and many statements either are not in harmony with well established facts, or they lack experimental proof. For instance, the variability of the vitamin content of butter receives emphasis out of all proportion to its importance, and no account is taken of the vitamin A value of green foods, though several green leaves are, weight for weight, as rich or richer in this vitamin than good butter. As a source of vitamin D, butter is of little value and plants of none. The sources of this vitamin for the people whom Dr. Price found well nourished are the skin of the people themselves, the vitamin being formed by exposure to direct sunlight, or fish liver oils, the importance of which does not receive due recognition. The author seems confused by the fact that there are a number of chemical compounds which have vitamin D activity. While of great scientific interest, this knowledge in no way detracts from the established and practical value of fish liver oils in the diets of growing children.

The chief contributions of this book are the excellent photographs and the pleasant chat about the customs of the various people visited. In view of the splendid work which has been done with regard to the nutrition and health of the teeth during the past twenty years, it is difficult to understand how any one interested enough to make these journeys should have so completely ignored it all. The book does not appear to me to have advanced our knowledge of the causes of tooth decay in any way.

MARY S. ROSE, PH.D.

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Books reviewed in this section should be ordered from booksellers or direct from the publishers. They may not be secured through HYGEIA or the American Medical Association, unless published by this organization. The following list contains the complete addresses where the publishers mentioned in these reviews may be reached:

Duke University Press, Durham, N. C.
Paul B. Hoeber, Inc., 49 E. 33rd St., New York City.
The Vanguard Press, 424 Madison Ave., New York City.

RHEUMATIC INFECTIONS

(Continued from page 1110)

these hearts. Careful observations by the child, parent and the doctor will eventually result in an adequate routine. A safe axiom is: Never exercise to the point of getting tired or short of breath.

A chronic rheumatic heart is not an absolute bar to matrimony or maternity. The risk of transmission to posterity is rather small; but what should be known is that many girls with rheumatic hearts will probably die young because of reinfection, creating an additional social problem wherein the young children are left motherless. In a certain number of cases it is doubtful whether they will be able to carry even one pregnancy to a successful conclusion. Likewise, man must appreciate that his span of life, at least statistically, is about 20 years less than the average, emphasizing the social problem of leaving his children fatherless in the most productive period of his life. Therefore, the advisability of having children must become the personal problem not only of the patient but also of the family physician.

If the heart finally becomes irregular, and if the body begins to fill up with fluid, then there is, fortunately, an additional encouragement for the patient, for the physician today possesses the knowledge lacked a few years ago concerning such drugs as digitalis and quinidine. But best of all is the knowledge of drugs which cause excess body fluids to be forced through the kidneys.

Here is a serious disease, killing many of its victims, and crippling all of them to some extent. And strangely enough it is due to a bodily invasion of a germ that all of us carry in our throats, most of us with impunity. In this case the barrier between health and disease is so thin that it is almost imperceptible. For the physician, however, there are many tests available to determine the rheumatic state. And he is also best fitted to outline a safe program for the child to follow if he finds this disease present.

All Life Comes from Life

***Sex education is "thin ice" for most elementary school teachers. But while parents have a marked aversion to "sex" as a segment of the curriculum, there are several advantages in developing the concept of reproduction as a science project, contends* ROBERT N. KING**

OUR STUDY of the reproduction of plants and animals arose by accident. A fourth grade science class was observing some living protozoans on a microprojector. Suddenly one animal in the final stages of fission appeared on the screen. The children were immediately curious.

"Are they stuck together?"

"Why do they break in half?"

"Is there a father and mother?"

"Do they lay eggs?"

Numerous other questions were asked about the birth and development of plants and animals. Such genuine interest was shown that the class launched itself into a study of the reproduction of living things.

Sex education, though admittedly desirable, is "thin ice" for most school teachers. Parents have a marked aversion to "sex" as a part of the curriculum. However, to develop the concept of reproduction as a science problem through the elementary grades has several advantages: (1) The child is not conscious of sex as a disturbance in his life. Questions are freely asked. (2) The child obtains a vocabulary that will permit free expression of problems he may later have. He can overcome the fear of talking about this subject with others. (3) Parents are sympathetic toward science. They are willing to have their children study the reproduction of plants and animals but are often antagonistic toward "sex education."

When reproduction was chosen the following objectives were established: (1) Each living thing produces its own kind of living thing. (2) Each group has its own way of making new individuals. In order to give the children a broad concept, plants and animals of all groups were chosen for testing and experimentation. Bacteria, protozoa, molds, moss, ferns, frogs, yeast, sponges, fish, birds, flowering plants, trees, mice and cats were studied. When possible, embryos were preserved and used for comparison.

Incubation was the experiment of greatest interest and value to the children. A child had brought a bird's egg that had fallen from a nest. The problem at first was simply to save the life of the baby bird inside. The egg was taken to a local chicken hatchery. Although the embryo was dead, the children observed the entire process of incubation.

Interest in an incubator ran high:

"How can hot air hatch an egg?"

"Why did they roll the eggs?"

"Can't we make an incubator?"

It was decided that three boys would build an incubator in the shop. Crude as it was, it served our purpose in raising chickens. The incubator consisted of a square wooden box with a hinged cover, an electric light controlled by a compound bar thermostat, a thermometer and a heavy piece of flannel. Holes in the back gave ventilation. When the temperature fell below 101 F. the compound bar bent downward, completed an electric circuit and turned the light on. When the temperature rose above 104 F. the compound bar bent upward, broke the circuit, and shut off the light. Thus an almost constant temperature was maintained.

Twice a day the children turned the eggs. With this hand operation, not all of the eggs received equal heat on all sides, thus making the incubator only 80 per cent effi-

Proud of their success, the students invited the other children in school to inspect the incubator and embryos.

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cient. It hatched enough chickens, however, to answer all our problems.

The first attempt was a failure. The children placed unfertilized eggs in the incubator. When nothing happened they decided to investigate. They opened all of the eggs but could find no trace of a living chicken such as they had seen in the eggs in the hatchery incubator. They checked the incubator; it was in good working order.

"What is the matter with our eggs?"

"Do we need special eggs?"

After discussion they discovered they needed fertilized eggs. Strangely enough, the question "How do eggs get fertilized?" was not asked until they had added such words as ova, sperm, and fertilization to their vocabulary. Several children could volunteer the answer and made the explanation directly and simply. The question was left at once for one of greater interest—namely, to hatch some chickens.

The next day two dozen fertilized eggs were brought from a local hatchery and placed in the incubator. Some unfertilized eggs were allowed to remain as a check.

After the first day of incubation, a fertilized egg was cut open and a small circular embryo could be seen floating on the yolk. The children examined it carefully under the microprojector but could find little that resembled a real chicken. An unfertilized egg showed no growth at all. In five days the process was repeated. Imagine their enthusiasm when they discovered a small growing embryo with a visible beating heart. The blood system could be clearly seen and the head was distinct because of its excessive size. Nothing, of course, had grown in the unfertilized egg.

Fertilized and unfertilized eggs were opened and studied on the tenth and fifteenth days. The embryos were preserved in alcohol. On the twentieth day another egg was opened. The embryo was almost fully developed and even kicked feebly. But it was not strong enough to live outside the shell.

Proud of their success, the children invited other children in school to see their incubator and embryos. They acted as guides and explained how the incubator worked, how the embryos grew and the difference between the kinds of eggs incubated. On the twenty-first day five of the remaining eggs hatched. The chicks were carefully watched and fed. At the end of the semester the chicks were given to children who wished to keep them.

Many values were derived from this one experience. The children actually saw the development of an embryo from an almost microscopic stage to birth. Furthermore, they understood the process of sexual reproduction. When this experience was carried over to the reproduction in higher animals and plants, concepts were easily formed. For example, in the study of mammals, it was easy for the class to understand how an embryo could be fertilized and raised inside the body of the female, rather than in a shell. They could understand the necessity of the umbilical cord, which they observed in newborn mice, and in cat embryos obtained at the high school. They saw that the yolk was absent.

Other activities used to develop the concepts previously mentioned were:

(1) Observation of bacteria and protozoa through a microprojector. The protozoa were grown in swamp water from hay infusion and from rain water. Bacteria taken from the air, from dirty fingernails, and from tap water were grown on agar plates. Control plates ascertained the sterility of the agar.

(2) The children, in raising bacteria on agar, discovered molds. Molds were later grown on bread, cheese, jam, and potatoes and observed in the projector.

(3) Simple plants, such as algae, moss and yeasts were grown and observed.

(4) Hydra and fresh water sponges were used to illustrate budding in simple animals and to show the similarity between plants and animals.

(5) Vertebrates offered the most interesting experimentation. Guppies were raised to illustrate viviparous (producing living young from within the body) reproduction in fish. Frog eggs were collected, raised and a chart kept to record daily changes. Mice, white rats, guinea pigs and chickens afforded opportunities for similar experiments.

(6) The children examined the parts of a flower, drew diagrams

and studied pollination. They soaked bean seeds, dissected them and compared them with eggs. As the beans germinated, they observed the food shrink just as the yolk had shrunk. As one child put it: "Gosh, a seed is a plant's egg."

Through such varied experiences the children answered their own questions. They acquired a knowledge of reproduction without becoming conscious of "sex" as a personal problem. With such preliminary sex education, later followed by individual instruction, either by the parents or by the school, children can make more satisfactory adjustments in life.

Feeding the Army

(Continued from page 1063)

worker, dining out for $1.50 or $2.00. In reality, the daily average usually runs somewhat below this sum, and is caught up by special occasions when a particular mess stages an elaborate "spread" for a birthday of one of its members or a like event.

The army meal is never planned upon the "no choice" basis; each meal offers a variety for the soldier to choose. A typical breakfast menu is: fresh fruit juices, dry cereal, oatmeal, eggs and bacon, griddle cakes, coffee, milk, bread and butter, muffins.

There is no limit to the quantity a man may eat except his own capacity, and that the doughboy does well to estimate with some care, because the army does not tolerate a half-eaten dish. The usual error is on the "short" side, which brings the soldier back to the counters for more.

Having acquired a background of solid theory from the stirring of soup to the serving of his buddies, the rookie advances to the kitchen. His first job may be to boil a few potatoes, says 45 pounds, to feed a 100 men. They must be seasoned correctly, and while this is a simple process with one potato, it grows in complexity with quantity. Most cooking proportions in the army are based on the 100 men unit. After a few weeks of practice, the student is usually able to prepare for 100 to 150 men with aplomb.

Starting their course of practical training, the students have one sizeable advantage. Foods which find their way into the kitchens and eventually into the collective mouth of the American army have been tested first and approved in government laboratories, and are thoroughly examined by trained inspectors before delivery. The army purchases by millions but checks by ones.

The above picture leaves the army well-fed, but immobile. Such an army would probably be extremely healthy and undoubtedly extremely useless. The United States army has a reputation for rapid maneuvering, and its cooks and bakers have a less-known but equal facility for feeding that army and its most mobile units.

In 1917 the army had created a field range which could boil water or prepare an elaborate soufflé for a 100 men. Extensive experimentation since that time has resulted in the development of a more compact, yet more ample steel and cast iron field range. This unit packs easily on one of the field trucks, can be set up in a few minutes, or re-packed as quickly. An army cook is trained to work under fire and pressure.

As an indispensable part of their regular training, the student cooks and bakers learn how to operate on the field range with the same facility as in a post kitchen. And, generally, army cooks and bakers, like army artillery and infantry personnel, are good soldiers. Topping this typical characteristic of the American doughboy, the cook and baker finishes his "hitch" in the army with a special ability for cooking delectable, nutritious meals, even, if necessary, under severe handicaps.

GELATIN and FATIGUE

Contrary to a previous report by other investigators, the administration of gelatin under controlled conditions failed to ward off muscular fatigue or to increase work ability, George L. Maison, Detroit, declares in *The Journal* of the American Medical Association.

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GIVE THEM DANCING!

(*Continued from page 1105*)

child in question is a daughter, and she has strong arches, you may want her to take toe dancing. Then you'll pay $5.00 more for toe shoes, plus about 50 cents for the lamb's wool padding. But don't allow your baby to take to her toes much before seven years; it strains and is likely to knot developing muscles. Also, be sure that your teacher prescribes the proper reconditioning exercises to follow each toe practice.

You'll need a 50 cent to $1.00 case in which to transport all these shoes to and from the studio. And there'll be some sort of class romper, which shouldn't cost more than $1.50. The revues, however, can really wreck your budget if you're not careful. With the excitement of a gala show in the air, it's shockingly easy to be swept off guard by 2 dollar a yard jewel cloth, velvet and taffeta, only to discover later that your starlet's few minutes behind the footlights have cost you 15 or 20 dollars. Don't order fabrics recklessly; shop around town. Rayon satin costs about a fifth as much as the real thing and gives the same effect under lights. Ten cent organdy works into ruffles quite as crisply enchanting as the half-dollar kind.

Exclusive of the unpredictable cost of costumes, estimating on a nine months' basis, and presupposing you've found a reasonable teacher, a year's dancing for your child will necessitate a minimum expenditure of around $60. On the other hand, dealing in maximums, the sky's the limit.

What can you expect from your investment? Well, almost precisely what you're seeking, depending upon whether you're Parent Model A or B. If, after going into a serious huddle with your conscience, you decide you're the A type, simply select the best studio, slough your offspring regularly at the sill, and go on and play bridge. He, she, or they will never startle you with any Fred Astairian performances, but they'll be having a wholesome, body-building good time and gaining a sense of rhythm and balance that is practically inoculation against such adolescent maladjustments as awkwardness, self-consciousness and inferiority complexes.

If you belong in Class B and are prepared to "sacrifice" the requisite time and energy, you'll reap all the above rewards, plus many a proud parental thrill.

In any case, if you're thinking of giving your children dancing, it's only fair that you realize what you're in for. Dancing lessons are a lot of bother and considerable expense. They're also a lot of satisfaction, and frequently the highroad to real accomplishment. Speaking personally—and for almost every studio mother I've known—dancing lessons are worth all the time, money and energy they require.

EARS

(*Continued from page 1054*)

6. Retardation in school. The repetition of grades is, on the average, in direct proportion to the hearing loss.

7. Distortion of speech out of proportion to the child's age. This may also be due to word deafness, either congenital or acquired from others, rather than to ear disease.

8. Constant buzzing in the ears, varying from a peanut-stand whistle to the roar of Niagara.

9. Vertigo or dizziness. These symptoms may also be caused by other things, ranging from gastrointestinal disturbances to anemia. However, when the vertigo is associated with a jumping of the eyeball it should be considered symptomatic of an ear defect.

10. Failure to respond when called or to locate the source of sound properly; going in the wrong direction in response. Sometimes failure to respond is due to "inattention deafness." Since nature gave us more hearing than we need, in self-defense we tend to shut out

noises in which we are not interested.

11. Headaches, fever, sweats, chills, acidosis, vomiting, coma, if otherwise unexplained.

12. Tenderness, itching, heat or pain, deformities or swellings in or about the ears.

13. Moisture or discharge, running or odor from the external ear canal.

14. Facial spasm or paralysis.

15. Allergic and neurologic symptoms correlated to any of the above manifestations.

It is true that we cannot protect children so that they live in a sterile environment. Over-protection unfits them for life in the real world. But there are certain prophylactic measures that every mother may take to assure her child normal, healthy ears and good hearing acuity.

Other than congenital defects, most hearing difficulties can be prevented if the troubles from which they stem are recognized promptly and treated at their source. Enlarged tonsils and adenoids, recurrent colds, bronchitis or sinusitis, pus producing diseases of the middle ear and their after effects, blocked nasal passages and the infectious diseases of childhood are the chief causes of hearing disorders.

Most of the difficulty begins after infancy when the child is free to wander for the first time beyond the immediate protection of home and nursery. He is more exposed to colds and drafts, more at the mercy of inclement weather and infectious diseases. For the small child who has shown a predisposition to nose and throat infections, the nursery school is of questionable advantage. Delay his introduction to social contacts in the interest of upper respiratory protection.

Regular and adequate hours for sleep, study, and play, and the avoidance of crowds are sound preventive measures. Exposure to colds and drafts when overheated are dangerous. Diving and swimming under water should be forbidden for the child who has a tendency to nose, throat or ear infections. The mother must see that the child is properly clothed, sheltered and fed. At the first sign of ear trouble, either potential or actual, take swift, protective action.

Thousands of deaf ears among today's adult population are the result of neglecting efficient ear treatment and substituting grandmother's onion poultices for medical attention. Hot cigar smoke was blown into aching ears by male relatives who used to say complacently, "There. That'll fix it." But this treatment failed to help. Abscesses broke too late, tearing jagged holes in ear-drums and making excessive scar-tissue that formed permanent obstructions to hearing.

Today, science has new miracles to offer ailing ears. The dreaded mastoiditis operation is no longer the dangerous procedure it used to be. The new drugs, sulfanilamide and sulfapyridine, give promise of proving formidable foes of such bacterial invaders as streptococcus. Hearing tests, given at regular intervals, permit the early detection of difficulties that yield to prompt remedial measures. Finally, constant research is continually improving mechanical aids to hearing. In a great many types of deafness, these bring help to abnormal ears, just as proper lenses correct the defects of abnormal eyes.

But in all these things, procrastination is the thief of hearing. There is no sadder medical verdict on ears than: "If I had only seen her a year ago, I could have helped her. Now it's too late."

If your child is always asking, "What did you say?" do not make the mistake of blaming it on inattention or lack of concentration. Find out. The greatest obstacle to progress is often the parent's aversion to admitting a defect where one exists.

A Thief in the Night (Continued from page 1091)

early stages is generally effective, while treatment in the latter stages is often discouraging and disappointing. Glaucoma still robs its victims of sight, either slowly and insidiously through neglect, or suddenly by an acute attack which destroys all vision, without prospect of restoration. But glaucoma can, through, education, be brought into the light of knowledge and stripped of its disastrous powers.

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Medical News OF THE MONTH

Sulfapyridine for Friedländer Type of Pneumonia

The first reported use of sulfapyridine for chronic pneumonia due to the Friedländer bacillus brought about the recovery of 4 patients in whom it was used, Saul Solomon, New York, declares in The Journal of the American Medical Association.

The more common type of pneumonia is caused by the pneumococcus, a berry-shaped organism, whereas the Friedländer bacillus, named after its discoverer, a German pathologist, is rod-shaped and is responsible for from 1 to 3 per cent of all adult cases of acute pneumonia. Solomon points out that an estimation of the incidence of the chronic type of Friedländer pneumonia is difficult to make but it is less than that of the acute type. "It is probable, however," he says, "that the disease is more common than is generally supposed since this condition is frequently mistaken for other chronic lung diseases."

He reports 17 chronic cases. Four of them were given sulfapyridine and one, who was bacteremic (had bacteria in the blood stream), was given sulfanilamide. All 5 recovered. Among the other 12 patients, who were given other treatment, there were 4 deaths.

Says Troops Must Be Trained to Adapt Themselves to Climate

A plan which he considers practical for training recruits to adapt themselves to climatic change without loss of military efficiency, a factor of utmost importance in maintaining the health and endurance of an army, is outlined in *The Journal* of the American Medical Association by Charles I. Singer, Long Beach, N. Y.

"By means of planned, gradual, repeated exposures," he says, "the limits of the individual comfort zone may be expanded—a process known as hardening. Through the hardening process the system acquires a direct defense mechanism against sudden and marked changes in the external environment. It is not sufficient to adapt soldiers to sudden climatic changes alone. They must be able to endure prolonged climatic exposures associated with physical strain."

Abrupt climatic changes, he points out, may bring to the fore latent diseases such as tuberculosis, arthritis, heart disease and respiratory infections. Such changes also tend to lower general resistance to acute infections.

Among his recommendations for climatic adaptation, Dr. Singer suggests that the training of recruits start in the fall of the year, as the gradual change to winter affords a parallel to gradual hardening by progressive exposure. He also urges that summer maneuvers take place in the South and winter maneuvers in the North "to provide troops trained for both extremes—subarctic rigor and tropical mugginess." Further recommendations include the use of water in treatment, a low average temperature of winter barracks, and individual climatic endurance charts to determine the adaptability of the soldier of whom special duties may be required.

Rheumatic Fever and Heart Disease Should Be Reportable

Rheumatic fever and rheumatic heart disease should be made strictly reportable, in order that the public may come to realize the seriousness of the public health problems which they represent and the necessity of widely extending the facilities for their treatment, Homer F. Swift, New York, recommends in *The Journal* of the American Medical Association.

Public recognition of the nature and requirements of the problems of such disease, he says, has lagged far behind the attention given to other diseases of less numerical and economic importance.

Low Blood Pressure

Hypotension (low blood pressure), although often considered an undesirable condition or even a disease, in reality is an ideal blood pressure level, S. C. Robinson, Chicago, maintains in the *New England Journal of Medicine*.

The person with low blood pressure has been described as one who lacks stamina, tires easily, complains of cold hands and feet, and is unable to do prolonged work. According to Robinson, however, neither these nor any other symptoms are peculiar to or due to hypotension, although he points out that there are diseases which may be accompanied by low blood pressure. "The symptoms usually ascribed to hypotension are in reality commoner among hypertensive persons," he declares. "Neither fatigue nor vitality is a function of the level of blood pressure; rather they are related to the daily physical activity of the individual. In fact, those persons noted for endurance, vitality and well-being, trained athletes, farmers and other active groups, are also noted for their high incidence of low blood pressure.

Expenditures Increase for Auto and Decrease for Medical Care

"Recent studies by the United States Bureau of Labor Statistics indicate that the much exploited difficulties in the payment for medical care are due more to the increase of expenditures for other items in the family budget than for medical care itself," *The Journal* of the American Medical Association declares.

Expenditures classed as "miscellaneous" increased from 17 per cent of the total budget in 1917-1919 to 26.8 per cent in 1924-1936, *The Journal* says. "When this 'miscellaneous' item is analyzed," it points out, "expenditures for automobiles are found to have been practically negligible from 1917 to 1919, but now 'in combination, automobile purchases and operation constitute almost one fifth of the new miscellaneous index.' At the same time the 'weight for medical care is less by one-half.' During the last twenty years the purchase and care of automobiles seem to have had greater appeal than the desire for additional medical service."

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